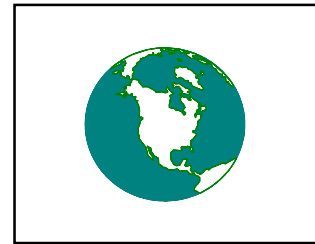


Michael P. Walsh
3105 N. Dinwiddie Street
Arlington, Virginia 22207
USA
Phone: (703) 241 1297 Fax: (703) 241 1418
E-Mail mpwalsh@igc.org
<http://walshcarlines.com>



CAR LINES

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**Sustainable Transportation
The Latest Low Pollution School Bus Technology in Vietnam¹**

¹ With thanks to Dr. Nicole Motteux

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EUROPE

1. EU Proposes Fuel Standards to Combat Climate Change and Reduce Air Pollution

The European Commission has proposed new standards for transport fuels that will reduce their contribution to climate change and air pollution, including through greater use of biofuels. The changes underscore the Commission's commitment to ensuring that the EU combats climate change and air pollution effectively. The proposed standards will not only make the fuels themselves 'cleaner' but will also allow the introduction of vehicles and machinery that pollute less. To encourage the development of lower-carbon fuels and biofuels, suppliers will have to reduce the greenhouse gas emissions caused by the production, transport and use of their fuels by 10% between 2011 and 2020. This will cut emissions by 500 million tons of carbon dioxide by 2020 - equivalent to the total combined emissions of Spain and Sweden today. A new petrol blend will be established allowing higher content of ethanol, and sulfur levels in diesel and gasoil will be cut to reduce emissions of dangerous particles.

Environment Commissioner Stavros Dimas said: "This is one of the most important measures in the series of new initiatives the Commission needs to take to step up the fight against global climate change. It is a concrete test of our political commitment to leadership on climate policy and our capacity to translate political priorities into concrete measures. It will further underpin Europe's shift towards the low-carbon economy that is essential if we are to prevent climate change from reaching dangerous proportions. These proposals will also help achieve a significant reduction in the noxious pollutants from transport that can harm our citizens' health, as well as opening the way for a major expansion in the use of biofuels, especially second generation biofuels."

The new standards will achieve:

- A reduction in EU greenhouse gas emissions of 500 million tons of carbon dioxide by 2020
- An improvement in the quality of transport fuels and promotion of "second generation" biofuels that will bring bigger emission savings
- Better public health through a reduction in noxious pollutants, in particular due to lower sulfur content of diesel.

The 1998 fuel quality directive sets common EU specifications for petrol, diesel and gasoil used in road vehicles, inland waterway barges and non-road mobile machinery such as locomotives, earth moving machinery and tractors. Its aim is to protect human health and the environment and ensure a single market in these fuels. The Commission's proposal to revise the directive reflects developments in fuel and engine technology, the growing importance of biofuels and the need both to meet the air quality goals set out in the 2005 Thematic Strategy on Air Pollution and to further reduce the greenhouse gas emissions that are causing climate change.

The revised directive will introduce an obligation for fuel suppliers to reduce the greenhouse gas emissions that their fuels cause over their life-cycle, i.e. when they are refined, transported and used. From 2011, suppliers will have to reduce emissions per unit of energy by 1% a year from 2010 levels. This will result in a 10% cut by 2020.

This obligation will promote the further development of low-carbon fuels and other measures to reduce emissions from the fuel production chain, and will help ensure that the fuel sector contributes to achieving the EU's greenhouse gas reduction goals.

To enable a higher volume of biofuels to be used in petrol, a separate petrol blend will be established with a higher permitted content of oxygenates, including up to 10% ethanol. The different petrol blends will be clearly marked to avoid fuelling vehicles with incompatible fuel. To compensate for an increase in emissions of polluting vapors that will result from greater use of ethanol, the Commission will put forward a proposal for the mandatory introduction of vapor recovery equipment at filling stations later this year. These volatile organic compounds contribute to the formation of ground-level ozone pollution, which can cause premature death in people with breathing difficulties or heart problems.

From 1 January 2009 all diesel fuel marketed will have to have an ultra-low sulfur content (no more than 10 parts per million). This will cut pollutant emissions, primarily of dust particles ('particulate matter'), the air pollutant most dangerous for human health. This sulfur reduction will in particular facilitate the introduction of new pollution-control equipment such as particle filters on diesel vehicles. From the same date, the maximum permitted content of diesel poly aromatic hydrocarbons (PAHs) will be reduced by one-third. This may reduce emissions not only of PAHs, some of which may cause cancer, but also of particulate matter.

The permitted sulfur content of gasoil for use by non-road machinery and inland waterway barges will also be substantially cut. This too will reduce emissions of particulate matter and allow the introduction of more advanced engines and emission control equipment.

The costs of the different elements have been assessed and, overall, the changes proposed are justified on a cost-benefit analysis.

Main changes to technical specifications proposed are contained in the table below.

Parameter	Old value	New value
Maximum permitted oxygen content in petrol	2.7% by mass	3.7% by mass in "high biofuel petrol"
Maximum ethanol content	5% by volume	10% by volume in "high biofuel petrol"
Other oxygenates	Varied between 3 and 15%	All increased by a comparable amount in "high biofuel petrol" except methanol.
Sulfur content of road transport diesel	Currently 50ppm. Provisionally 10ppm from 1/1/2009	10ppm from 31/12/2008.
Sulfur content of non-road machinery gas-oil	1000ppm from 2008	10ppm from 31/12/2009.
Sulfur content of inland waterway gas-oil	1000ppm from 2008	300ppm from 31/12/2009 10ppm from 31/12/2011
Poly Aromatic Hydrocarbon content of diesel	11% by mass	8% by mass

2. EU Member States Reach Initial Agreement on Carbon Emissions, Renewables, Biofuels

On February 20th, European Union member states agreed to call for developed countries to cut carbon dioxide emissions 30 percent by 2020 from 1990 levels. The target, agreed to by national environment ministers meeting in the EU Environment Council, is in line with European Commission proposals made on January 10th setting out plans for the period after 2012, when the first commitment phase of the Kyoto Protocol ends.

In common with the Commission's proposal, the environment ministers said the 30 percent target would be made conditional on the agreement of other developed countries in international negotiations. If this global agreement is not achieved, the European Union will in any case make a "firm independent commitment" to cut greenhouse gas emissions by 20 percent, the Environment Council said in a statement.

The proposed target now needs final approval by the European Council, which will next meet on March 8th and 9th. The Commission will then be required to make detailed proposals on how the target will be achieved and enforced.

These proposals should take into account burden-sharing, under which the overall target will be broken down among EU countries, and should be based on "fairness and transparency, and taking into account national circumstances," the ministers said in a statement.

The environment ministers also broadly endorsed a number of other Commission proposals for measures to combat climate change, and called for detailed proposals to be made. These measures include extending the EU Emissions Trading Scheme (ETS), including aviation emissions in the ETS, and taking steps to mitigate the impacts of climate change.

The Environment Council conclusions will be forwarded to the European Council alongside a separate set of conclusions from EU economy and energy ministers, who met in the Energy Council on February 16th. During this meeting, ministers agreed in principle to adopt targets on renewable energy and biofuels for 2020 but held back from agreeing that the targets should be made binding.

Proposals on renewables and biofuels were also published by the European Commission on January 10th alongside the climate change target proposals. The Commission said member states should be obliged to generate up to 20 percent of their energy from renewable sources by 2020, while 10 percent of vehicle fuels should be made up of biofuels by the same date.

On renewables, the Energy Council said differentiated national targets should be established to contribute to the overall 20 percent target.

On biofuels, the council conclusions said the target could be binding, but this would be "subject to production being sustainable, second-generation biofuels becoming commercially available, and ... [allowance being made] for adequate levels of blending."

The Energy Council said the Commission should now prepare detailed proposals, including national action plans and sectoral targets, showing how the renewables and biofuels targets would be achieved. These detailed proposals should be published in 2007, the Council said.

3. EU Commission Proposal Would Require Automakers to Meet Carbon Emissions Target

On February 7th, the European Commission published a strategy reaffirming its objective of reducing carbon dioxide emissions from cars sold in the European Union to 120 grams per kilometer on average by 2012. Improvements in vehicle engine technology will be expected to reduce emissions to 130 grams per kilometer on average, with the remaining reduction coming from measures such as efficiency improvements in car tires and air conditioning systems.

The strategy did not specify how the targets would be monitored or enforced, saying only that legislative proposals to reach the limits will be published in 2007 or early in 2008.

The Commission said in a statement the 120 g/km objective "is defined as the average of the new cars sold in a given year." In practice this could be implemented by following a U.S. model of average fuel efficiency level per car manufacturer, or a Japanese approach using "a fuel efficiency objective as a function of the car weight," the statement said.

The strategy paper was originally intended for publication Jan. 24 but was delayed amid reports of disagreements among EU commissioners. Environment Commissioner Stavros Dimas wanted the target of 120 g/km by 2012 to be made binding and to be achieved through vehicle fuel consumption efficiencies alone. Carbon dioxide output of 120 g/km corresponds to fuel consumption of 4.5 liters per 100 kilometers for diesel cars, and 5 liters per 100 kilometers for petrol cars (52.3 and 47.0 miles per gallon, respectively).

However, Dimas is seen as having compromised in the face of demands by Commission Vice President Günter Verheugen, who pushed for an integrated strategy combining reduced fuel consumption with measures such as better traffic management and greater use of biofuels. This approach would "reconcile the need for higher standards in respect of climate change" while protecting jobs, Verheugen said, presenting the proposals to journalists.

The strategy also suggests other targets and measures that the Commission says will be subject to full legislative proposals by mid-2008. These include:

- limiting average carbon dioxide emissions from vans to 175 g/km by 2012 and 160 g/km by 2015, compared with a 2002 average of 201g/km;
- providing support for research with a view to working toward an average carbon emissions level of 95 g/km from new cars by 2020;
- encouraging EU countries to base car taxes on carbon emissions; and
- setting up a code of good practice on automobile marketing and advertising to limit consumer demand for less fuel- efficient vehicles.

To stimulate consumer demand for more efficient cars, the commission will propose amendments to strengthen the fuel efficiency labeling directive. It will also invite manufacturers to sign up to an EU code of good practice on car marketing and advertising, and continue to encourage member states to base car taxation on CO2 emissions.

The commission says it will wait for reactions from the parliament and council before tabling legislative proposals, which could happen this year or as late as mid-2008. Wednesday's communication was accompanied by the commission's response to the Cars 21 high-level group's final recommendations.

The new chair of the parliament's environment committee, Miroslav Ouzky, criticized the commission for tabling a "less ambitious proposal than originally envisaged".

The current EU strategy for reducing CO₂ emissions from cars is based on voluntary commitments by the car industry. Under the voluntary commitments, European manufacturers have said they will reduce average emissions from their new cars to 140 g CO₂/km by 2008, while the Japanese and Korean industries will do so by 2009. However, the strategy has brought only limited progress towards achieving the target of 120 g CO₂/km by 2012, said the Commission. From 1995 to 2004 average emissions from new cars sold in the EU-15 fell from 186 g CO₂/km to 163 g CO₂/km.

The Commission's proposal is set out in a Communication addressed to the European Parliament and the Council of Ministers. The Commission will implement the strategy based on the responses from the Parliament and the Council, and after a consultation with stakeholders.

Road transport generates about 20% of the EU's CO₂ emissions, with passenger cars responsible for around 12%. In spite of the progress in vehicle technology and improved fuel efficiency, emissions from cars continue to grow due to increases in traffic and car size. While the EU-25 reduced overall emissions of greenhouse gases by almost 5% between 1990 and 2004, CO₂ emissions from road transport rose by 26%.

4. Council Backs Binding CO₂ Limits for Carmakers

EU environment ministers expressed overwhelming support for binding legislation forcing carmakers to reduce carbon dioxide emissions from new vehicles. It was their first debate on a policy paper tabled by the European commission earlier this month.

At their environment council in Brussels most ministers endorsed the "integrated approach" proposed by the commission. This would introduce mandatory rules for producers flanked by complementary measures on tires, air conditioning systems and vehicle labeling. Ministers also stressed the need for a thorough impact assessment of the various measures.

Some ministers, particularly from the newer member states, said the proposed measures must not lead to a "disproportionate" rise in the prices of new cars. This could harm sales and raise the average age of the EU car fleet, they warned.

The Belgian, Austrian and Dutch delegations challenged a commission proposal that greater use of biofuels in transport should count towards a reduction in car CO₂ emissions. They called on it to explain how it would calculate the biofuel contribution. The German presidency countered that such a policy was necessary to "arouse the interest of the market" to invest in the development of second generation biofuels.

The presidency wants environment ministers to agree a resolution on the issue at their next meeting in June. After much prompting by ministers, environment commissioner Stavros Dimas

promised to table legislative proposals by the end of this year or the beginning of next "at the latest".

EU competitiveness ministers gave the commission's integrated approach to vehicle emissions "broad support" during a debate on the future of the EU car industry at a meeting in Brussels, a commission official said.

5. Bulgaria, Romania Join European Union

Bulgaria and Romania - two former communist nations from one of the poorest corners of Europe - joined the European Union on January 1st to bring the bloc's membership to 27 nations. The two, which bring 30 million new members to the union, officially joined the EU at midnight to joyous fireworks celebrations that drew tens of thousands of New Year's Eve revelers to the two capitals of Sofia and Bucharest.

Bulgaria and Romania threw off communism in 1989, applied for EU membership in 1995 and began accession talks in 2000. Negotiations ended two years ago, and the European Commission declared in September that both could join. But the two impoverished countries are still struggling to establish Western-style legal and political institutions. Under restrictions adopted by the EU, both must report every six months to show progress in reforms - or risk losing part of their economic aid.

Despite lingering problems, both countries recently have had strong economic growth. Still, salaries remain low by western European standards. In Bulgaria, the average monthly wage is \$235, while the average Romanian earns about \$400 monthly.

6. German Aid Scheme for Cleaner Trucks Approved

Road transport operators in Germany will be able to receive state aid to buy cleaner trucks under a six-year support scheme approved by the European commission. Under the scheme, haulers can enjoy subsidies worth E100m per year for six years. Vehicles complying with Euro 5 emission norms are eligible until September 2008, when the standard becomes a legal requirement for new engine types. Subsidies will still be available after that for vehicles that exceed Euro 5 norms.

7. EU Court Rules in Polish Car Tax Case

Polish car duties introduced to protect the environment by curbing imports of second-hand German cars likely contradict EU internal market obligations, the European court of justice ruled last week. The judgment could land the government with a huge bill - currently estimated at 50 to E600m - if individuals who paid excise duties when importing second-hand cars seek to reclaim the money. The government has already abolished the 2004 excise duty rules, but is having difficulty introducing a replacement.

8. Denmark Launches "Visionary" Green Energy Plan

The Danish government has published what it describes as "an ambitious and visionary" energy strategy aimed at cutting fossil fuel consumption by up to 15 percent and doubling energy supply from renewable sources to 30 per cent of the total by 2025.

Under the plan, annual funding for energy research would double to DKr1bn (E134m) from 2010. The share of biofuels in transport would rise to 10 per cent by 2020, and total energy consumption would fall by 1.25 per cent a year.

In addition, wind power capacity would be doubled to 6,000MW, keeping Denmark as number three in Europe behind Spain and Germany. Use of biogas would be tripled and heat pumps would be installed in 100,000 dwellings.

All this appears to be something of a U-turn from a 20-year energy strategy announced just 18 months ago according to which traditional targets were to be abandoned in favor of a reliance on high prices for oil and industrial carbon dioxide (CO₂) emissions to boost renewable electricity.

Danish Transport and Energy Minister Flemming Hansen said the strategy sends "a clear signal to the EU that Denmark is ready to take the lead in pending discussions of European Commission proposals for the EU's future energy policy".

Other measures include the introduction of a new system of energy efficiency credits, a reduction in registration fees for hydrogen-powered cars and other fuel-efficient vehicles, and a new system that will award tradable certificates to Danes who invest in approved domestic energy-saving initiatives.

However, the measures, which were presented on January 19th and will be evaluated every fourth year, do not go as far as Denmark's left-of-center opposition had hoped. The Social Democrats and their allies had called for a target for at least half of the nation's energy usage to come from renewable sources by 2025. The opposition lent its support to the measures after the government agreed to a "stock take" in 2015 when more ambitious goals will be considered.

A government statement points out that investment in research and development can be cost-effective, as the nation currently exports environmental and energy efficiency technology worth DKK45 billion each year.

9. Report Notes Declining Share of Renewables in Italy

Renewable energy in Italy is declining as a percentage of total energy use, according to a report released January 10th by the Italian branch of the World Wildlife Fund, which urged the government to take steps to change the situation. Based on a year's worth of research, the report showed that renewable energy provided 15.3 percent of Italy's energy needs last year, compared to 16 percent in 1997. The report said Italy trailed all of the 24 other EU countries last year in terms of the development of renewable energy sources (not including Romania and Bulgaria, which joined the bloc on January 1). In a briefing, WWF officials called on the government to create a set of economic incentives to make renewable energy sources like wind power and biomass--both thought to have strong potential in Italy--more viable.

10. Spanish Cabinet Moves Forward on Air Quality, Climate Change

On January 19th, Spain's Council of Ministers approved energy efficiency standards for buildings, introduced a clean air bill, and announced the contents of upcoming reports on climate change and organic farming.

The Air Quality and Atmospheric Protection Bill, was introduced which will replace the Atmospheric Environment Protection Act of 1972. That act pre-dates Spain's 1978 Constitution and, according to the government, is ill-equipped for meeting Spain's EU and international obligations.

"The goal of [the bill] is to help reach and maintain a high level of protection for people and the environment from the adverse effects of pollution," the Council said. "The rules are thus inspired by the principles of caution and preventive action, pollution remediation at the source, and 'polluter pays.' "

According to the Council, the new legislation will help regional governments better monitor pollution and manage air quality in accordance with EU standards. This will include fixing quality objectives, periodic evaluations, and territorial zoning by pollution levels in order to identify areas exceeding permitted levels. The law will also provide mechanisms for monitoring the emissions of activities and products, regulating inspection procedures, and applying sanctions.

Cities of more than 250,000 inhabitants will have additional responsibilities, such as setting up municipal infrastructures for evaluating pollution and informing the public of air pollution levels. In the event of unacceptable pollution levels, both regional and larger municipal governments will be required to incorporate pollution reduction plans into their urban and territorial planning and inform the public when these plans are inconsistent. This will apply to all pollutants for which there exist air quality objectives.

Contaminants are also more widely defined - carbon dioxide is included for the first time. And an updated scale of sanctions introduced including fines of up to E2m for serious infractions.

Environmental group Ecologists in Action warned that a fundamental obstacle to improved performance remained "the apparent constitutional inability of central government to impose sanctions on regional administrations for inaction".

European commission studies calculate that air pollution causes 16,000 deaths per year in Spain. The pollutants that most regularly exceed maximum permitted levels are ozone, NO2 and particulates (PM10).

The bill, for which a number is pending, must first pass Parliament, which is likely given the dominance of the ruling Socialists. The final law will constitute an important part of the Spanish Air Quality Strategy, which the government is expected to approve this year.

The Council also reviewed a climate change report from the environment ministry, which estimated that 2006 was "with all probability" the hottest year in Spanish history, meaning that the average temperature was 1.34 degrees Celsius over the 1961-1990 average.

At the same time, the environment ministry said "preliminary data" pointed to "a signification change in tendency in greenhouse gas emissions" in 2006. Given the 7.8 percent reduction from 2005 levels in the power sector--which represents a quarter of total emissions--and slowing energy consumption, the ministry forecast that "emissions will have shown clear stabilization, or even reduction, with respect to the previous year."

According to the ministry, while energy consumption rose 2.5 percent in 2005, this was below the rate of economic growth and thus demonstrated reduction in the energy intensity of the

Spanish economy "for the first time in recent years."

The government has stated that fighting climate change will be one of its key objectives for 2007.

Spain's carbon emissions goal for 2008-2010 is to emit no more than 37 percent over 1990 levels. While its burden-sharing agreement with the EU limits emissions to 15 percent over 1990 levels during the 2008-2012 period, the government expects land absorption to account for a 2 percent reduction, and will purchase credits from abroad to cover the remaining 20 percent.

11. Spain to Exclude Polluting Cars from Tax Break

A tax break offered to Spaniards who scrap old cars for a new vehicle will be extended for another year but will no longer apply to purchases of high-powered, polluting cars, the government announced. The new version of the so-called Plan Prever will offer a 480.81 euro (US\$634) tax break to anybody swapping a car more than 10 years old for a new vehicle with an engine of up to 2,500 cc.

That rules out many four-by-fours, which have enjoyed a huge gain in popularity in Spain in recent years.

"Not applying Prever to those vehicles is justified because they are less environmentally friendly, both in terms of their emissions and the way they are used," the Economy Ministry said in a statement after the government's weekly cabinet meeting.

The old Plan Prever was introduced in 1997 as a measure to boost car sales. Since then, Spain has enjoyed a long economic boom and new registrations have grown, although the number of people qualifying and applying for the tax break had waned.

The plan was due to expire at the end of 2006 and the new version will last one more year, until Jan. 1, 2008.

The Economy Ministry said it would stop offering another tax break introduced in 2001 to encourage individuals to buy cars running on unleaded gas.

Car dealer association Faconauto was quick to criticize the plan to scrap tax breaks on bigger cars. "(This will) cause big distortions in demand at a time when the car market is showing clear signs of slowing down, an effect that is being softened by the strong growth in sales of luxury and 4x4 cars," it said in a statement. In the first 11 months of the year, new car sales in Spain fell 1.6 percent while 4x4 sales rose 12.3 percent.

12. French Environment Minister Says Kyoto Achievable

French greenhouse gas emissions in 2005 were 1.8 percent below those reported in 1990, putting the country on track to meet its obligations under the Kyoto Protocol, Minister of Ecology and Sustainable Development Nelly Olin said January 11. The European Union's burden-sharing agreement on Kyoto implementation requires France to freeze its greenhouse gas emissions at 1990 levels over the 2008-2012 period.

France emitted 554 million tons of carbon dioxide-equivalent during 2005 versus 564.2 million tons of CO₂-e in 1990, according to government data.

Olin told participants at a meeting on climate change that government policies have reversed long-standing trends toward rising carbon dioxide emissions, signaling that the Kyoto Protocol objectives are now within reach.

Emissions are now trending downward in most sectors, notably in the transportation sector, even though emissions there are currently 22 percent above 1990 levels, according to government data. Transport emissions dropped by 0.9 percent in 2005 from a year earlier while road transport emissions were down by 1.1 percent over the same period, Olin said.

Olin recognized that some of the decrease in transport emissions is linked to rising oil prices, but she said that new policies introduced over the past year will also show results.

Updates to the National Climate Change Action Plan (Plan Climat 2004-2012) implemented during 2006 should permit France to reduce emissions by "an additional 6-8 million tons of CO₂ each year," Olin said.

On the transport front, these policies include:

- a campaign to increase the use of farm-sourced, low-emission biofuels;
- mandatory labeling with energy consumption and CO₂ information for new cars;
- increased registration taxes on high-pollution vehicles;
- higher tax credits for buyers of low-emission vehicles;
- steeper taxes on high-emission company cars; and
- increased funding for public transport systems.

Olin said France remained committed to reduce carbon emissions by one-quarter by 2050.

13. French Consumer Group Criticizes Biofuel Tax Breaks

France's leading consumer group released a report on January 10th criticizing a series of new tax breaks aimed at boosting the use of ethanol. The report suggests that promoting biofuels may not be the most environmentally or economically efficient means of reducing greenhouse gas emissions from transportation. The tax breaks, which took effect January 1st as part of wider climate policies, reduce prices on ethanol sourced from French crops. Consumer protection organization UFC Que Choisir suggests that France's environmental and economic goals would be better served by lowering taxes on imports of low-cost, sugar cane-based ethanol from Brazil. The consumer group recommends the government boost support for research and development on the next generation of biofuels, which will likely be sourced from biomass, and limit gas tax reductions to diesel-based biofuels sourced from French rapeseed or sunflower crops, which appear to have better environmental performance than ethanol.

14. No Headway for Norway on Kyoto

Norwegians continue to generate a high volume of greenhouse gases while maintaining a "relatively large discrepancy" between the biggest polluters and those most affected by green taxes, according to a new report by Statistics Norway (SSB). In its annual survey of resources and environmental impacts, the agency holds petroleum activities on the Norwegian Continental Shelf responsible for almost a third of the national total, now running at eight percentage points over the Kyoto target for 2008-2012.

15. Norway Revises Vehicle Purchase Tax to Target CO₂ Emissions

On January 1st, Norway began implementing a vehicle purchase tax based on cars' carbon dioxide emissions as part of a broader campaign to offer incentives for lower-emitting cars. Additional tax measures targeting vehicle carbon dioxide emissions may be included in the 2008 budget plan, which is to be released after the summer recess, officials said.

Taxing vehicles based on carbon emissions is "more forward-looking" than the previous practice of taxing them based on engine capacity because carbon emissions "are not linked to any specific engine technology," the Finance Ministry said in a statement January 19th.

"In the fight against global climate problems, the Norwegian Government has stated that it intends to use the vehicle tax system as a means to reduce climate-unfriendly emissions," according to Finance Ministry Spokesman Anders Lande. The new tax "is designed to motivate consumers to buy vehicles with lower CO₂ emissions."

The government has not yet decided how to treat vehicles that can be powered by both standard gasoline and bio-ethanol. According to the Finance Ministry, a proposal is expected to be finalized by May.

Likewise, final agreement has not yet been reached on changes to annual vehicle taxes, although the government has indicated it intends to use local air pollution as a criterion. A proposal on "environmental differentiation of annual vehicle taxes" is scheduled to be included in the 2008 budget plan.

The European Union's "Euro 5" standards may serve as the basis for the annual vehicle taxes, officials said. While Norway is not a member of the European Union, it follows most EU environmental rules, including the "Euro" series of vehicle emission standards.

"The government has indicated it will introduce a differentiation of the annual car tax from 2008," Lande said. "This differentiation will be designed to decrease local air pollution, and can be based on the Euro 5 exhaust requirements that the different vehicles fulfill. Since the Euro requirements are becoming stricter, the tax will in reality also be differentiated based on the car's age."

According to government figures, vehicles account for just fewer than 23 percent of Norway's carbon emissions, though this has been rising since 2000.

16. Britain Drafts Standard for Voluntary Greenhouse Gas Emissions Offsets

On January 18th, the U.K. government opened consultations on a draft voluntary standard for carbon dioxide emissions offsets that aims to establish greater clarity and a code of conduct for

buyers and sellers. The standard is essentially a code of best practice. Among other things, it includes guidance for accurately calculating emissions to be offset, for setting prices, and for retiring credits.

The offsetting of carbon dioxide emissions is an increasingly common practice, especially in Great Britain, as businesses and individuals seek to voluntarily compensate for greenhouse gas emissions they cause by sponsoring reductions elsewhere. A growing number of companies and nonprofits are responding to this demand by investing in emissions-reduction projects, many of which are located in the developing world.

At a briefing in London, U.K. Department for Environment, Food, and Rural Affairs (DEFRA) official Susanna May said the voluntary standard would help address concerns that a lack of information about offsetting created a risk that the practice could become discredited.

The draft standard calls for most offsets to be generated under the Kyoto Protocol's Clean Development Mechanism. According to May, most offsets now available to consumers are unregulated "voluntary emissions reductions," which are not recognized by the Kyoto Protocol.

Comments on the draft standard will be accepted through April 13.

17. New Environmental Agency Planned for Poland

Poland this year will establish a new Environmental Protection Agency to augment its existing Environment Ministry. Also this year, the country will take steps to reduce sulfur dioxide emissions from power plants.

The agency will take over several ministry functions including: management of the National Fund for Environmental Protection and Water Management (NFOSiGW), which provides money to local authorities for environmental projects; oversight of the Environmental Inspection Office; and responsibility for several environmental research institutes.

Creating an agency along the lines of the U.S. EPA was first proposed three years ago, but plans have only now been fully developed.

Another priority for Poland this year is to prepare to meet EU emission standards for sulfur dioxide that take effect January 1, 2008. Poland is obliged by the 2004 Accession Treaty to comply with EU Directive 2001/80/EC on the Limitation of Emissions of Certain Pollutants into the Air by Large Combustion Plants (LCP Directive). Most experts doubt, however, the country will meet the deadline.

The predominant air pollutant in Poland is sulfur dioxide from coal. Poland gets 95 percent of its electricity from coal.

The EU Commission has allowed Poland to exempt some large combustion plants from EU standards until 2015, but Polish and EU authorities so far have not reached agreement on which plants should be granted the grace period. Brussels says that Poland has 1,000 LCPs that must comply with the standard by 2008, but Poland only recognizes 400.

By the EU definition, Polish LCPs emitted 676,000 tons of sulfur dioxide in 2004, which would have to be reduced to 485,000 tons by 2008 under the Accession Treaty.

18. Athens Air Pollution Increases Extremely Hazardous

Increases in the proportion of airborne pollution particles, provoked by traffic congestion and the burning of low-grade fuels, are responsible for thousands of deaths in Athens, experts told a conference.

Every increase of 10 milligrams per cubic meter in the concentration of these particles provokes around 5,000 deaths in Athens, according to Professor Klea Katsouyianni of Athens University's Medical School. "Athenians are affected most, as the presence of these microparticles increases significantly in cities with high concentrations of nitrogen dioxide and high temperatures," she said.

The increase in road traffic in the capital, with an estimated 8 million road journeys conducted per day, boosts emissions of these particles, according to transport expert Panos Papadakis.

And the illegal trade in diesel fuels – where tax-free heating oil is being sold as automotive fuel – is also contributing to pollution, as heating oil pollutes more than automotive fuel, according to Professor Costas Fytianos of Thessaloniki's Aristotle University.

19. German Car Taxation Debate Continues

A plan by the German government to link car taxes to carbon dioxide and other emissions has become embroiled in a row with Germany's 16 states over tax raising powers.

States, which currently gather some E8.8bn in car tax revenues, reacted with skepticism to the government's plan when it was tabled two weeks ago, expressing constitutional and other concerns. Now they have proposed ceding responsibility for car taxation to Berlin, demanding in return a transfer to the states of other taxation powers, such as on insurance, to cover the lost revenue.

The federal government has responded cautiously. Finance minister Peer Steinbrück said that while he was not opposed to the idea, it should be agreed later as part of a further reform of Germany's federal system.

Former German environment minister and head of the UN environment program Klaus Toepfer entered the debate, suggesting that car taxes should be shifted entirely to petrol to encourage more efficient vehicles and lower usage.

In a related development, data have revealed that new cars sold in Germany emit more CO₂ than the European average. Fleet average emissions in 2006 were 172.5 g/km, compared with a European fleet average of under 170 g/km in 2004.

20. EU Proposals Spotlight Germany's High-Speed Cars

European Union moves to cut carbon dioxide emissions rekindled a debate in Germany on limiting speed on the country's unrestricted "Autobahnen", where sleek sedans and sports cars travel at a blistering pace.

A poll in Stern magazine showed 60 percent of Germans favor limits on the Autobahnen network to protect the environment. Environmentalists want a blanket limit of 120 kph (75 mph) in an attempt to reduce carbon dioxide (CO₂) emissions, but the transport ministry has rejected the proposals.

Carmakers, such as BMW, Porsche or the Mercedes unit of DaimlerChrysler, say speed-limit free roads lead to innovation and better, safer cars.

21. New Report Says Surging Transport Threatens EU Kyoto Goals

A surge in transport in the European Union is jeopardizing goals for cutting greenhouse gases blamed for global warming, according to the European Environment Agency (EEA)². Emissions from transport, led by a near-doubling in aviation traffic, rose on average by 25 percent across Europe from 1990-2004 even as most EU nations managed to cut emissions from other sectors such as industry or agriculture.

"The environmental performance of the transport sector is still unsatisfactory," the EEA said in a report covering EU nations along with some details of outsiders Turkey, Switzerland, Norway, Iceland and Liechtenstein. "This tendency threatens both Europe's and individual EU member states' progress towards their ... targets" under the U.N. Kyoto Protocol, it said in a 44-page report. "Therefore, additional policy initiatives and instruments are needed."

Transport, based mainly on burning oil, accounts for about a fifth of European emissions of heat-trapping gases from human activities. Cars and trucks account for more than 90 percent of transport emissions, ahead of ships, planes and trains.

From 1990-2003, passenger transport volumes in Europe grew by 20 percent, the EEA said. More people own cars and often drive further, for instance to out-of-town shopping malls. Air transport alone surged by 96 percent, aided by cheaper flights.

Under Kyoto, the European Union has to cut emissions of greenhouse gases by 8 percent below 1990 levels by 2008-12. Emissions were 0.6 percent below 1990 levels in 2004.

"Technical advances, such as cleaner, more fuel efficient engines are very important but we cannot innovate our way out of the emissions problem from transport," said Jacqueline McGlade, head of the Copenhagen-based EEA.

The report noted that road transport was polluting less but air quality in cities was still above EU limits. One in four EU citizens lives less than 500 meters (yards) from a road carrying more than 3 million vehicles a year, it said.

And transport was creating other problems, such as noise and slicing up landscapes with new roads. The EEA also said Europe spent 270-290 billion euros (US\$355.6-\$381.9 billion) in transport subsidies a year, some of them environmentally damaging.

The report said greenhouse gas emissions from transport had grown fastest in Luxembourg, Ireland, the Czech Republic, Portugal and Romania. All had gains exceeding 90 percent from 1990-2004. In the same period, emissions fell only in Lithuania, Bulgaria and Estonia.

² 'Transport and Environment: on the way to a new common transport policy'

Emissions from international flights are now excluded from Kyoto but the EU Commission wants them to be part of an emissions trading scheme. It also wants tighter emissions rules for cars, saying industry goals are insufficient.

The EEA said a 2005 study of the EU projected that road and aviation passenger transport volumes would rise by 36 and 105 percent respectively between 2000 and 2020, by when the Commission wants deeper cuts in overall emissions.

Freight transport was also rising, because more goods were being transported and over longer distances.

Transport is responsible for 21 % of total greenhouse gas (GHG) emissions in the EU-15 (excluding international aviation and maritime transport). Road transport contributes 93 % of the total of all transport emissions. However, emissions from international aviation are growing fastest with an increase of 86 % between 1990 and 2004.

GHG emissions (excluding marine and aviation) from transport grew the most in Luxembourg and Ireland between 1990 and 2004 with respective increases of 156 and 140 %. The average increase in the 32 EEA member countries was 25 %.

“By suggesting that we simply deal with the environmental impacts of transport, the mid term review of the 2001 White Paper on Transport could be interpreted as a softening of Europe’s line on the need to deal with transport volumes. This cannot be the case,” said Professor Jacqueline McGlade, Executive Director of the EEA.

“We cannot deal with the increasing GHG emissions, noise pollution and landscape fragmentation caused by transport without dealing with the increasing traffic across the spectrum: on our roads and railways, in the air and by sea. Technical advances, such as cleaner, more fuel efficient engines are very important but we cannot innovate our way out of the emissions problem from transport.” she said.

The report also highlights the significant role that transport subsidies play in terms of directing transport choices. Between €270 and €290 billion is spent annually in Europe in transport subsidies. Almost half of these subsidies go to road transport, one of the least environmentally friendly modes. The EEA will release a detailed study of transport subsidies in March 2007

Pollution from transport is also having a direct effect on our health. Almost 25% of the EU-25 population lives less than 500 meters from a road carrying more than three million vehicles per year. Consequently, almost four million life-years are lost each year due to high pollution levels, the report says.

22. Czech MEP Takes Over Environment Committee

Czech MEP Miroslav Ouzky has taken over the chairmanship of the European parliament's environment committee. The 49-year-old doctor is a member of the right-leaning Eurosceptic Civic Democratic Party (ODS), which currently governs the Czech Republic in coalition with the Green party. He will control business of what is in legislative terms the parliament's most important committee.

Mr. Ouzky has been a member of the committee since the Czech Republic's accession to the EU in 2004 but has kept a very low profile and is seen as a political unknown. At his election to the post by fellow MEPs on Thursday Mr. Ouzky said the legacy of communist-era heavy pollution in his native region of North Bohemia had prompted his interest in environment policy. Some MEPs have suggested the new chairman holds "climate skeptic" views, however.

Mr. Ouzky replaces Karl-Heinz Florenz, a popular veteran MEP from Germany's center-right CDU party who stands down at the mid-point of the parliament's five-year legislative period. Despite his political affiliation Mr. Florenz took a progressive "green" line on many issues. He acted as the parliament's rapporteur on EU waste car and electronics legislation.

23. EU Parliament Committee Urges Mandatory Kyoto Protocol Targets for China, India

On January 30th, the European Parliament's environment committee adopted a resolution that China and India should be subject to mandatory limits on greenhouse gas emissions for the post-2012 period under the Kyoto Protocol. According to the resolution, China and India should be given emission reduction targets for the second phase of the Kyoto treaty, which will commence after 2012, because "developing countries cannot be treated as one bloc."

The resolution calls for the European Union to treat China and India differently from other developing countries during the next phase of climate change negotiations. Negotiations should "differentiate between emerging countries and developing countries, especially least developed countries," the resolution says.

China and India are currently exempt from Kyoto emissions targets, as are other non-industrialized countries.

The committee adopted the resolution in advance of the Spring European Council in March 2007, when EU heads of state will discuss the EU Commission's proposals and the Parliament's position, and will set out EU policy on international climate change negotiations.

The resolution also criticizes the Commission's position on global greenhouse gas emission targets through 2020 for "lack of clarity."

The parliamentary resolution calls for a minimum 30 percent reduction for all industrialized countries "to have a reasonable chance to meet the EU objective of limiting the average temperature increase to 2 degrees Celsius."

The environment committee also made a number of other recommendations for strengthening EU climate change policy, including that "sustainable biofuels" should make up 20 percent of vehicle fuels in the EU by 2020, against a Commission proposal, published on January 10th, for a 10 percent target.

In addition, the Commission should take to the European Court of Justice EU member states that have not yet implemented a 2002 Directive on energy efficiency of buildings, the resolution says.

The resolution was put forward by the outgoing chairman of the environment committee, Karl-Heinz Florenz, from the center right European People's Party.

24. Congestion Charge Zone in UK Capital to be Expanded

London's congestion charge zone, already the world's biggest, is set to double in size in a bid to cut traffic and pollution.

So successful has the existing charge zone been, with vehicle numbers down about 10 percent four years after it started, that cities in the US and Europe are following suit and the government is planning national road tolls from 2015.

But the plans to extend road pricing schemes to highways and urban centers throughout the country to ease bottlenecks have faced widespread opposition, leaving the government with tough choices if it wants motorists to pay for each mile they drive. So far 1.5 million people have signed a petition against a national scheme on Prime Minister Tony Blair's Downing Street Web site.

Congestion in Britain has become a major headache for the government and businesses with more than 30 million cars clogging the roads in a nation of 60 million people.

While the aim of the 8 pound (US\$15.6) daily charge on all vehicles in the new London zone extending from Hyde Park to Earl's Court is to cut congestion and journey time, it is expected to boost traffic in the original congestion zone. Michele Dix, London's congestion charge chief, said the western extension of the zone would cut traffic levels by 10-15 percent, but conversely increase traffic by one percent in the existing area because of the 90 percent discount to residents.

The extended zone will take in London's landmark classical concert venue the Albert Hall and top shopping areas such as Chelsea's Kings Road, Knightsbridge, which is home to luxury store Harrods, Kensington and Notting Hill.

Putting in the 693 cameras at 137 sites has cost more than 100 million pounds. Net revenues are expected to be 25-40 million pounds a year. Money from the new scheme is supposed to buy more buses and improve roads and cycle paths.

25. French Plans Would Link Motorway Tolls to Pollution

On February 8th, France presented plans to link tolls charged on its national motorway system to vehicle pollution levels. Transport Minister Dominique Perben said the government is drafting legislation to drop motorway tolls by up to 20 percent for low-pollution cars and trucks, potentially as early as January 2008. Perben said the toll reduction would likely apply to trucks that meet Euro V emissions standards before they are mandatory and cars that emit less than 130 grams of carbon dioxide per kilometer. The toll reduction project was the key recommendation from a government report on methods for reducing air pollution and curbing greenhouse gas emissions from the transport sector while increasing the uptake of clean vehicles. Perben said the legislation would be ready for parliamentary discussion this fall, meaning that any decision on the plan to link tolls to pollution will be taken by the government that emerges following elections slated for May and June.

26. Shipping "Should Be Brought Into EU ETS"

Bringing shipping into the EU emission trading scheme (EU ETS) would be the best way to address its carbon dioxide output, according to an expert report published by the European commission. Along with aviation, international shipping is currently excluded from emission targets under the Kyoto protocol. The report assesses alternative policies that could be used to target the sector's greenhouse gas impacts.

Adding shipping to the EU ETS would be the only way to cap the sector's overall climate impact, the report concludes. This would also give ship owners flexibility and would be practical to implement and enforce. Nevertheless, new allowance allocation methods would have to be developed.

Alternatively, the report suggests, the EU could require CO₂-linked harbor dues. Or it could set a CO₂ emissions cap on all ships calling at EU ports. These would be as environmentally effective as trading, says the report.

In any of these three cases, a practical obstacle remains: how to evaluate shipping CO₂ emissions. Another part of the report begins to address this issue. It reviews and builds on work by done by the International maritime organization (IMO) to develop an index that measures ships' CO₂ emissions per ton-kilometer or similar measure of work performed.

The EU study adds lots of new data on actual ships, but it says more data still is needed to derive average indices for all ship categories in the world fleet.

Two more segments of the report aim to improve implementation of a marine fuel sulfur directive passed by the EU in 2005. One reviews different compliance options with a view to alerting ship owners to requirements and retrofit possibilities, and giving member states guidance on enforcement. The other study is a technical analysis of sulfur abatement technologies called scrubbers. It will be used by the EU to propose scrubber approval criteria. The study notes that although six scrubber development projects have been underway since 1990, the technology is still not commercially available because such criteria do not exist.

27. Commission Outlines Policy Goals For 2008

Tackling climate change will remain an "integral part" of the European commission's political priorities next year, according to its long-range policy strategy for 2008. The commission predicts a "crucial year" for proposals tabled in the major climate and energy package adopted last month. Other planned legislation includes measures to limit nitrogen oxides from aviation and to limit shipping emissions. Introducing the Reach chemicals policy will provide "a key test to enhance the competitiveness of European industry while improving health and the environment."

28. Czech Environment Ministry Plans Early 2008 Ecology Tax Reforms

The Czech government is planning to launch its three-phase ecological tax reform in early 2008, Czech Environment Minister Martin Bursik told reporters on February 11th.

The first phase, starting next January, will be a tax on coal, natural gas, and electricity, resulting in an increase of 10 percent in the cost of coal and a 0.35 koruny (\$0.016) per square meter increase in the cost of natural gas.

The second phase, starting in 2010, will involve a revision of standing tariffs and transport fuels and will implement a new tax on carbon dioxide emissions. The third phase, between 2014 and 2017, will extend the tax to other natural resources, products, services, and forms of environmental exploitation

In the first phase, the tax is expected to generate between 2 billion and 3 billion koruny (\$92 million to \$137 million) in revenues. However, because the government wants to keep the tax revenue-neutral, it has promised to lower taxes in other areas such as social security. Opposition Social Democratic Party Cochairman Bohuslav Sobotka said his party would support the measure if the revenues are used to lower the income taxes of low-wage earners rather than for social security.

The Czech Republic is Europe's largest exporter of electricity, according to the Czech Energy Regulation Bureau. In 2006, the country exported 24 GWh of electricity, or one-third of its production, according to the Bureau.

29. Portugal to Green Vehicle Taxation System

The Portuguese government has approved a new car taxation regime that would charge duty on road vehicles according to environmental impact from July 2007. The plans were first outlined in Portugal's climate change strategy and require both parliamentary and presidential approval to enter force.

Two new taxes, a one-off purchase tax (ISV) and an annual road tax (IUC), would replace the current fragmented vehicle taxation system. The tax level would be partially weighted according to engine size and CO2 emissions.

In the first year of the system 30 per cent of the tax would be weighted according to emissions; this would rise to 60 per cent from July 2008. Diesel vehicles would lose some existing fiscal advantages but the cleanest would be eligible for a E500 rebate.

30. Portugal Pledges Climate Change Leadership

Portugal's Prime Minister Jose Socrates promised his country would play "a leading role" in directing European climate change policy during Portugal's EU presidency in the second half of this year. In a speech to the Portuguese parliament, Mr. Socrates unveiled a series of new emissions reduction targets and measures.

Announcing a revised target of sourcing 45 per cent of electricity consumption from renewables by 2010 (up from 39 per cent), the prime minister promised encouragement for microgeneration, speeded-up licensing for new wind farms and biomass plants and a rigorously environmentally-evaluated dam-building and modernization program.

To further reduce power sector emissions Portugal's two big coal-fired plants will reduce CO2 emissions by 1m tons through partial conversion to biomass by 2010 with fuel-oil generation being phased out by the same date.

Mr. Socrates also set a more ambitious target for biofuels which, at 10 per cent of road fuel consumption by 2010, is almost twice the 5.75 per cent target set by the EU. And he told

parliament that the environmental weighting on vehicle tax would be increased progressively to 60 per cent by 2008.

The revised targets were welcomed by environmentalists along with the promised strategic assessment of all new dams, doing away with the previous case-by-case approach. However "the achievement of the renewable target will be very dependent on favorable rainfall patterns and the biofuel target can only be met importing raw materials" warned Francisco Ferreira of Quercus.

31. Legislation Creates Growth for Air Pollution Control Market

Legislation is creating excellent growth opportunities for the air pollution control equipment market in Western Europe. While the future of coal in power generation remains a challenge in some markets, the high price of gas and the emergence of advanced clean coal technologies (coupled with enhanced operational efficiencies promises to help coal-fired generation) retain its relevance and boost the market for air pollution control equipment.

Frost & Sullivan finds that the Western European Air Pollution Control Equipment Market earned revenues of EUR970 million in 2005 and estimates this to reach EUR1.165 billion in 2012.

"Legislation is undoubtedly the most important driver of growth for sales of air pollution control technologies," notes Frost & Sullivan Industry Analyst Jonathan Robinson. "The Large Combustion Plant Directive is the most important among a spate of recent legislation".

Environmental technologies do not improve performance and, therefore, constitute a capital cost that yields no economic benefit. As such, there is no incentive for power plants/utilities to install such technologies unless compelled to by a national or, as in the case of Europe, supranational governing authority such as the European Union. The Large Combustion Plant Directive obligates plants to either implement the necessary technology or face the ultimate sanction - permanent closure.

Among the major fuel sources, coal is by far the most polluting in terms of emissions, releasing high levels of PM, carbon dioxide, sulfur dioxide and nitrogen oxide. However, technologies such as fabric filters, electrostatic precipitators, flue gas desulfurisation and selective catalytic reduction (SCR) all act to reduce these emissions.

Gas does not emit sulfur dioxide or PM and produces much lower levels of carbon dioxide and nitrogen oxide. This means that only SCR is applicable for gas and, even then, is only one of several options. Serious environmental concerns notwithstanding, nuclear fuel remains untouched by emissions-related issues- it is almost carbon neutral and discharges no sulfur or nitrogen.

"The monetary value of the air pollution market for power plants in Europe is very closely linked to the debate between gas, coal, nuclear and renewables," explains Mr. Robinson. "If large-scale gas or nuclear construction takes place, then it severely restricts the market for environmental technologies, as neither of these fuels gives off the range and level of emissions as that of coal".

To promote market development, air pollution control equipment manufacturers have to support the case for coal-fired generation as much as possible. "The more they can help influence

governments away from gas-fired or nuclear-powered plants, the better," advises Mr. Robinson. "Coal does have its merits and the emissions that it gives off can be dealt with using technology; manufacturers need to ensure that decision makers and the wider population are aware of this."

32. New Russian Refinery to Make Euro-5 Fuels

According to a report from Skrin news service (Russia), "Rosneft has announced a tender to select a general contractor to construct a new oil refinery at premises of the current Tuapse Oil Refinery. The new refinery will have a capacity of 12 million tons per year. Plans envision the construction of a turnkey refinery. The Company plans to begin construction of the new refinery during the third quarter of 2007, with a target finish date after 42 months. The refinery will produce oil products that meet international Euro-4 and Euro-5 standards." Reportedly, Chevron has already been tapped for hydrocracking and hydrotreating technologies for the refinery's diesel fuel desulfurization needs.

33. Italian Provinces Announce Plans to Join Swiss Canton to Control Emissions

Five Italian regions and two autonomous provinces in the country's north have joined with one neighboring Swiss region to create Italy's first significant extra-regional environmental agreement not organized by the central government. On February 7th, the various governments issued a joint statement outlining plans to work together to protect air quality through a series of measures to restrict traffic and emissions from power plants.

The regional governments of Emilia-Romagna, which contains the city of Bologna; Lombardy, which includes Milan; Piedmont, which contains Turin; and Veneto, which includes Verona, are heading the agreement that also includes the small provinces of Bolzano and Trento and the Italian-speaking Swiss canton of Ticino.

According to the statement, the regional governments said they decided to take the steps because the national government had been too slow to act on the subject. Italian Environment Minister Alfonso Pecoraro Scanio said through a spokesman that he welcomed the initiative as a way to reduce pollution and increase public awareness.

The agreement focuses in particular on reducing suspended particulate matter measuring less than 10 micrometers in diameter ("PM-10"). The plan would require filters to be used on power plants, and it restricts the sale and circulation of most high-polluting vehicles. In larger cities such as Milan and Turin, all nonessential traffic will be prohibited in the city centers at least one day per week.

NORTH AMERICA

34. EPA Cuts Diesel Locomotive and Vessel Pollution

EPA is proposing a new rule to ensure that Americans continue to breathe cleaner air by significantly reducing air pollution from locomotive and marine diesel engines. The Clean Air Locomotive and Marine Diesel Rule would set stringent emission standards and require the use of advanced technology to reduce emissions.

When fully implemented, this landmark initiative would cut particulate matter emissions from these engines by 90 percent and nitrogen oxides emissions by 80 percent. This would result in annual health benefits of \$12 billion in 2030 and reduce premature deaths, hospitalizations and respiratory illnesses across the United States. These benefits would continue to grow as older locomotive and marine engines are replaced. Overall benefits are estimated to outweigh costs by more than 20 to 1.

The Clean Air Locomotive and Marine Diesel Rule would tighten emission standards for existing locomotives when they are remanufactured. Additionally, the rule sets stringent emission standards for new locomotive and marine diesel engines and sets long-term regulations that require the use of advanced technology to reduce emissions.

Consistent with its other clean diesel successes, EPA worked collaboratively with diverse stakeholders, including engine and equipment manufacturers, technology companies, environmental groups and states. The proposal dramatically cuts emissions from all types of diesel locomotives, including line-haul, switch, and passenger rail, as well as from a wide range of marine sources, including ferries, tugboats, yachts and marine auxiliary engines. This includes small generator sets to large generators on ocean-going ships.

The locomotive remanufacturing proposal would take effect as soon as certified systems are available, as early as 2008, but no later than 2010. Standards for new locomotive and marine diesel engines would phase-in starting in 2009. Long-term standards would phase-in beginning in 2014 for marine diesel engines and 2015 for locomotives. The rule also explores a remanufacturing program for existing large marine diesel engines similar to the existing program for locomotives. Other provisions seek to reduce unnecessary locomotive idling.

The Clean Diesel Locomotive and Marine program is another major achievement in EPA's decade-long campaign to revolutionize diesel engines and the fuels they use – making diesel as much an environmental workhorse as an economic one. The proposal builds on both the Clean Air Nonroad Diesel Rule and the Clean Diesel Truck and Bus Rule.

Existing EPA regulations include standards for emissions of PM, NO_x, HC and CO from locomotive and marine compression-ignition engines (also called diesel engines). These standards rely on engine-based technologies to reduce emissions. The opportunity to gain large additional public health benefits, as well as the similarities between these engines and highway diesel and nonroad engines, have led EPA to consider additional emission controls based on the high-efficiency aftertreatment technologies that will soon be in use by highway and nonroad engines.

Locomotive and marine diesel engines contribute significantly to air pollution in many of our nation's cities and towns. In the coming decades, these engines are expected to account for an even greater share of overall emissions as other emission control programs take effects for cars, trucks, and other nonroad emissions sources. EPA estimates that, without the emission reductions from today's proposal, by 2030 locomotive and marine diesel engines would contribute more than 65 percent of national mobile source diesel PM_{2.5} emissions and 35 percent of national mobile source NO_x emissions, a key precursor to ozone and secondary PM formation.

Recent air quality data show that about 157 million people live in areas that violate air quality standards for ground-level ozone, and about 88 million people live in areas that violate air quality standards from PM. These pollutants contribute to serious public health problems that

include premature mortality, aggravation of respiratory and cardiovascular disease, and aggravation of existing asthma, acute respiratory symptoms and chronic bronchitis. EPA believes that diesel exhaust is likely to be carcinogenic to humans by inhalation. Children, people with heart and lung diseases, and the elderly are thought to be most at risk.

Locomotive and marine diesel emissions reductions are expected to benefit those who live, work, or recreate in and along our nation's coastal areas, rivers, ports, and rail lines. Such reductions are expected to have beneficial impacts on visibility impairment and regional haze, as well as reducing crop damage and acid rain.

The proposed requirements would cover all locomotives and many marine diesel engines already subject to EPA emission standards, as follows:

- **Locomotives:** With limited exceptions, the regulations would apply to all line-haul, passenger, and switch locomotives that operate extensively within the United States, including newly manufactured locomotives and remanufactured locomotives that were originally manufactured after 1972. The primary exception is that the new remanufacturing standards would not apply to the existing fleets of locomotives owned by very small railroads.
- **Marine Diesel Engines:** The regulations would apply to newly-built marine diesel engines with displacements less than 30 liters per cylinder installed on vessels flagged or registered in the United States. These are commonly referred to as marine diesel engines and are divided into three categories for the purposes of EPA's standards. Category 1 are engines above 50 horsepower (hp) and up to 5 liters per cylinder displacement. Category 2 are engines from 5 to 30 liters per cylinder. Category 3 are engines at or above 30 liters per cylinder. EPA is proposing to change the definition of Category 1 and Category 2 engines to reflect a 7 liter per cylinder cut-off.

Marine Diesel engines are used in commercial, recreation, and auxiliary power applications. Commercial propulsion applications range from tug boats to Great Lakes freighters. Recreational propulsion applications range from sailboats to super-yachts. EPA is also requesting comments on whether the Agency should tighten emission standards for certain existing marine diesel engines when they are remanufactured. Marine diesel engines at or above 30 liters per cylinder displacement are not included in this proposal; these engines, which are typically used for propulsion on ocean-going vessels, will be addressed in a separate EPA rulemaking.

The proposal consists of a three-part emission control as follows:

- First, EPA is proposing to adopt more stringent standards for existing locomotives when they are remanufactured. These standards would take effect as soon as certified remanufacture systems are available (as early as 2008), but no later than 2010 (2013 for Tier 2 locomotives). EPA is also requesting comment on similar requirements for certain existing marine diesel engines when they are remanufactured.
- Second, EPA is proposing near-term emission standards, referred to as Tier 3 standards, for newly-built locomotive and marine engines. These standards would reflect the application of technologies to reduce engine-out PM and NOx emissions and would phase in starting in 2009.

- Third, EPA is proposing long-term emissions standards, referred to as Tier 4, for newly-built locomotives and marine diesel engines. These standards are based on the application of high-efficiency catalytic aftertreatment technology and would phase in beginning in 2014 for marine diesel engines and 2015 for locomotives. These standards are enabled by the availability of clean diesel fuel with sulfur content capped at 15 parts per million, which will be available beginning by 2012. These marine Tier 4 engine standards would apply only to commercial marine diesel engines above 800 hp and recreational marine diesel engines above 2,000 hp.

The proposal would result in PM reductions of about 90 percent and NOx reductions of about 80 percent from engines meeting these standards, compared to engines meeting the current standards. The proposed standards would also yield sizeable reductions in emissions of HC, CO, and other air toxics.

EPA estimates the annual cost of complying with the proposed program to be about \$600 million in 2030. The average price in 2030 of a locomotive is expected to increase by less than three percent (about \$49,000 per unit) as a result of the proposed standards. In the marine markets, the expected impacts in 2030 are different for engines above and below 800 hp. Increases in engine and vessel prices for commercial engines below 800 hp and recreational engines are expected to be small (less than one percent). The average price of a commercial marine diesel engine above 800 hp is expected to increase by about 8.5 percent for Category 1 engines and about 19 percent for Category 2 engines. The average price of a marine vessel using these larger engines is expected to increase much less, about 1 percent for vessels using Category 1 engines above 800 hp (about \$16,000) and 3.6 percent for vessels using Category 2 engines above 800 hp (about \$142,000). The expected impacts on prices in the locomotive and marine transportation service market would be less than one percent.

These proposed standards would result in substantial benefits to public health and welfare and to the environment. EPA estimates that by 2030 this comprehensive emission control program would reduce annual emissions of NOx and PM by 765,000 and 28,000 tons, respectively, and the magnitude of these reductions would continue to grow well beyond 2030. EPA estimates that the monetized health benefits of this rule in 2030 would be approximately \$12 billion. The value of the benefits would be much greater than the projected program cost of \$600 million per year. By 2030, the rule would annually prevent 1,500 premature mortalities; over 1,100 hospitalizations; 170,000 work days lost; and 1,000,000 minor restricted-activity days and other quantifiable benefits.

35. Diesel Soot Filters Urged to Protect US Commuters

Filters should be placed on millions of old diesel engines to protect Americans who breathe large amounts of lung-and-heart-damaging soot particles during their daily commutes, according to the Boston-based Clean Air Task Force; in a new report it said that up to 70,000 peoples' lives in the United States are shortened by fine particulates.

Tiny soot particles from sources including diesel engines can cause lung cancer, asthma, and heart problems, according to peer-reviewed studies.

The CATR found that fine particulate levels in four US cities were four to eight times higher along commuter routes than the average air quality in those cities. It said filters can help

improve the air quality. "The good news is that affordable technology is available today that can virtually eliminate commuter exposure to diesel particles on the road," the report said.

Since the beginning of the year, the US government has required trucks fresh off the assembly line to add diesel particulate filters, which combined with recently required cleaner fuels, cut particulates by 90 percent compared to old engines. But the CATR said 13 million engines on the road before this year still spew the particulates.

US refiners have been required to make ultra low sulfur diesel on a national basis since last October. A spokesman for the National Petrochemical and Refiners Association said refiners are making diesel as clean as they are able.

The CATR said since shipping trucks travel across the states, the federal Environmental Protection Agency should require long-haul trucks to add controls whenever the engines are rebuilt. Some of those trucks are driven 1 million miles before they are replaced, but their engines are rebuilt more frequently.

36. EPA Ozone 'Staff Paper' Could Prompt Modest Tightening Of Standard

Recommendations for new ozone standards by EPA's top scientific staff leave room for the agency to pursue a modest tightening of the current standard, but the agency could fall short of more stringent recommendations from EPA's science advisers and environmental groups. The recommendations which include a wide range of options, from just below the current standard to a stricter level sought by the activists -- set the stage for a political fight on updating the national ambient air quality standard (NAAQS) for ozone. This comes on top of an ongoing dispute over fine particulate matter (PM2.5) standards that has landed in federal court.

On January 31st, career agency scientists released a "staff paper" that outlines their recommendations for tightening the existing ozone NAAQS. The paper says that scientific evidence "calls into question the adequacy of the current standard" and "provides strong support for consideration" of a tighter limit to protect sensitive populations, according to a fact sheet EPA released in advance of the paper.

The paper includes a broad range of options for tightening the current 8-hour ozone standard, from 0.060 parts per million (ppm) to "somewhat below" 0.080 ppm. The agency currently allows ozone levels up to 0.084 ppm. In addition, the staff paper is recommending a first-time secondary ozone standard to guard against adverse ecological impacts, based on the weighted total of 12-hour exposures over a 3-month period.

An EPA spokeswoman says the staff is calling for a lower standard, though in theory anything below 0.079 ppm could fall within the recommendations. The staff analyzed impacts on air quality and risk at the levels of 0.074, 0.070 and 0.064 ppm, the fact sheet says. The spokeswoman also suggests that EPA is not bound to follow the recommendations in the staff paper, saying they are only "one of many tools" for the EPA administrator to decide on a new ozone limit. The agency is required to propose a new standard by June 20 and finalize it by March 12th 2008.

Members of EPA's Clean Air Scientific Advisory Committee (CASAC) are calling for an ozone standard at the lower end of the range proposed in the staff paper. EPA received heated

criticism from environmentalists and congressional Democrats after it declined to follow a CASAC recommendation last year for strengthening the PM standard.

CASAC is calling for lowering the standard between 0.07 and 0.06 ppm. The CASAC ozone review panel will meet March 5 to discuss the staff paper.

37. EPA to Reduce Benzene in Gasoline by One-Third in Mobile Source Rule

On February 9th, the Environmental Protection Agency announced a final rule that will cut the average level of benzene in gasoline by one-third by 2011. Known as the "mobile source air toxics rule," the regulation will require refiners to meet an average benzene standard for gasoline of 0.62 percent. The current national average is 0.97 percent.

Benzene is a known carcinogen and most of the country's benzene emissions come from automobiles and other mobile sources, according to EPA.

Refiners will be able to meet the benzene standard using tradable credits generated by refineries producing gasoline with benzene levels of less than 0.62-percent. But to prevent refiners from complying with the standard by accumulating credits rather than by reducing benzene levels, EPA also is imposing a 1.3 percent maximum average annual cap on benzene at each refinery.

In addition to controlling benzene in gasoline, EPA also is acting to reduce air toxic emissions from vehicles. These emissions include benzene and other non-methane hydrocarbon (NMHC) emissions from automobiles. The rule requires passenger vehicles to meet new NMHC exhaust emissions standards, to achieve a sales-weighted average of 0.3 grams per mile for vehicles smaller than 6,000 pounds, and 0.5 grams per mile for vehicles above 6,000 pounds.

These NMHC requirements will be phased in over four years, with the smaller vehicles required to meet the standard by 2013 and larger ones by 2015.

The final rule also includes standards for evaporative air toxic emissions from vehicles equivalent to those in place in California. The rule will tighten existing federal standards by 20 percent to 50 percent, depending on the size of the vehicle. The evaporative emissions standard will impose no new requirements on most manufacturers, since they are already adhering to California standards for all their vehicles, according to EPA.

The mobile source air toxics rule also will require that portable fuel containers, or gas cans, starting in 2009 emit no more than 0.3 grams of hydrocarbons a day.

Mobile sources were responsible for about 44 percent of outdoor toxic emissions, almost 50 percent of the cancer risk, and 74 percent of the noncancer risk in EPA's National-Scale Air Toxics Assessment (NATA) for 1999. In addition to benzene, mobile sources emit 1,3-butadiene, formaldehyde, acrolein, naphthalene, and polycyclic organic matter (POM). These substances are either known or probable carcinogens or have other health effects.

According to EPA, the rule will reduce mobile source air toxics by 330,000 tons in 2030, including 61,000 tons of benzene. As a result, new passenger vehicles will emit 45 percent less benzene, gas cans will emit 78 percent less benzene, and gasoline will have 38 percent less benzene overall, the agency said.

The rule also will reduce volatile organic compound (VOCs) by more than 1 million tons in 2030, and fine particle emissions by 19,000 tons. The fine particle reductions will reduce premature deaths by 900 annually, the agency said, with health benefits amounting to \$6 billion a year.

The mobile source air toxics rule will apply to 104 refineries in the United States and will impose an average cost of \$0.0027 per gallon, the agency said, resulting from about \$14 million in new capital costs. The cost to vehicle manufacturers will be less than \$1 per vehicle. The rule will add about \$2 to the cost of gas cans, the agency said.

38. Diesel Forum Says All Major Heavy-Duty Engines Meet '07 Standards

The Diesel Technology Forum has announced that all major heavy-duty truck and engine manufacturers have met new Environmental Protection Agency standards for emissions cuts and have been certified by EPA for full production.

The new big rigs are equipped with innovative new particulate matter filters that trap emissions and result in 2007 trucks being 90 percent cleaner than the previous generation of trucks. Nitrogen oxide emissions have also been reduced significantly with new technology.

"With the government certification of heavy-duty trucks now official, we can celebrate another milestone in the clean diesel transformation," Forum executive director Allen Schaeffer said. "The nationwide availability of ultra-low sulfur diesel fuel in October 2006 provided 97 percent cleaner diesel fuel, enabling manufacturers to engineer the cleanest diesel trucks ever. With government certifications officially recognizing the success of the new diesel engines in drastically cutting emissions, all Americans can celebrate a stunning clean air achievement. Truck and engine makers stepped up to the challenge, and now we've all met it."

Manufacturers now certified by the EPA include Caterpillar, Cummins, Detroit Diesel Corp., International, Mack and Volvo, meaning each is compliant with the most stringent diesel emissions standards in the world. The EPA predicts that these new trucks, once they fully replace the existing fleet, will reduce emissions of smog-forming gases by 2.6 million tons each year, and cut soot emissions by 110,000 tons annually.

"America's long-haul truckers can be confident in the reliability and durability of these engines," Schaeffer said. "The technology on these trucks has been engineered through millions of miles of testing, which has shown the performance, fuel economy and durability required to not only meet but exceed customer expectations."

Because 94 percent of goods are shipped via diesel trucks, consumers can soon expect that many products they see on store shelves will be delivered by the advanced technology trucks.

39. Dodge Ram Pickup to Get Clean Diesel Engine Meeting 2010 Standards

Dodge will introduce an all-new turbodiesel engine in its light duty pickup trucks after 2009, according to a news release. The new engine will provide a dramatic increase in low-end torque, up to a 30-percent improvement in fuel efficiency and a 20-percent reduction in carbon dioxide (CO₂) emissions when compared to an equivalent gasoline engine, the company claims.

"Our all-new Cummins engine will offer future Dodge Ram 1500 customers the ultimate in terms of fuel economy, refinement, reliability and durability," said Tom LaSorda, Chrysler Group President and CEO. "It's another example of the Chrysler Group bringing new, clean, quiet diesel technology to the marketplace."

The new clean diesel engine will meet 50-state emissions standards for 2010.

In March of this year, Dodge will offer a 6.7-liter Cummins turbodiesel in its Ram Heavy Duty trucks. The new engine meets 2010 standards in all 50 states.

"We are pleased to build upon our 18-year partnership and brand franchise with the Chrysler Group by providing our new light-duty diesel-powered engine for use in the Dodge Ram 1500," said Tim Solso, Cummins Chairman and CEO. "We know customers for this product will demand high performance. We also know that we need to be extremely good at fuel efficiency and emissions control in order to succeed in this market. Cummins will use its technology leadership to meet all of those criteria, while providing the driving public with an exciting new diesel engine alternative for the popular Dodge Ram series."

In the United States, current Chrysler Group diesel-powered models include the Dodge Ram Heavy Duty, powered by the new 6.7-liter Cummins turbodiesel; the all-new Dodge Ram 3500 Chassis Cab, with a new 6.7-liter Cummins turbodiesel; the Dodge Sprinter, with a 2.7-liter Common-rail Direct Injection (CDI) turbodiesel; and the Jeep Grand Cherokee, featuring a new 3.0-liter V-6 turbodiesel engine (which hits the market early this year).

In Europe, diesel-powered models account for more than half of Chrysler Group sales. Diesel versions of numerous Chrysler Group vehicles continue to be popular, including the Chrysler 300C, Chrysler PT Cruiser, Jeep Grand Cherokee and Jeep Compass, as well as the all-new 2007 Dodge Caliber and 2007 Jeep Wrangler, the company noted.

40. California Proposes Low-Carbon Standard for Transportation Fuel

On January 9th, California Gov. Arnold Schwarzenegger announced plans to establish what he called the "world's first low-carbon standard for transportation fuels." The standard, which will be developed by the California Air Resources Board, will require a 10 percent reduction by 2020 in the carbon intensity of fuels used in passenger cars. Fuel companies could comply with the standard by reducing carbon emissions associated with either the production or the burning of their products.

Developing the low carbon fuel standard and implementing the Global Warming Solutions Act (A.B. 32), which Schwarzenegger signed into law last year, are part of the agenda the governor delivered to the Legislature in his State of the State address.

The low carbon fuel standard would help move the state away from petroleum-based fuels, encourage the development and use of alternative technologies, and reduce greenhouse gas emissions, officials from the governor's office said at a news briefing before his speech.

California's "petroleum dependency contributes to climate change and leaves workers, businesses, and consumers vulnerable to price shocks from an unstable global energy market," Schwarzenegger said in a statement. "As a world leader in energy efficiency, alternative energy

and reducing greenhouse gases, California's new low carbon standard is an innovative action that will diversify our fuel supplies and establish a vibrant market for cleaner-burning fuels."

In California, transportation accounts for about 40 percent of greenhouse gas emissions, California Environmental Protection Agency Secretary Linda Adams told reporters. Ninety-six percent of those fuels are petroleum-based, she said. The low carbon fuel standard, when fully implemented, will cut greenhouse gas emissions by about 10 percent, or 13 million metric tons, Adams said.

California's low carbon fuel standard must be market-based and "compliance flexible," Dan Skopec, the Cal-EPA undersecretary, said. The standard must allow fuel providers to choose how they reduce carbon emissions.

CARB Chairman Robert Sawyer explained that gasoline producers could comply by blending lower-carbon ethanol into gasoline products. Fuel producers also could purchase credits generated by electric utilities that supply low carbon electrons to electric vehicles. The standard is expected to replace 20 percent of the state's on-road gasoline consumption with lower-carbon fuels, Sawyer said.

A study is under way by the University of California to develop protocols for measuring the "life-cycle carbon intensity" of transportation fuels, state officials said. CARB must complete its review of the protocols by June.

The low carbon fuel standard will be among the "early action" climate change regulations CARB is developing as part of the state's Global Warming Solutions Act.

41. Federal Judge Delays Trial over California Auto-Emissions Rules

A federal judge has postponed the trial over a lawsuit seeking to block a California law that would implement the world's toughest vehicle-emissions standards. U.S. District Judge Anthony Ishii also ordered the California Air Resources Board to delay enforcing tailpipe-emissions standards for greenhouse gases. The case had been scheduled to go to trial on January 30th.

In his order, Ishii said it was best to wait until the U.S. Supreme Court rules on a related global warming case.

"It's a logical thing to do," said David Doniger, an attorney for the Natural Resources Defense Council, which is helping the state defend the regulations. "The Supreme Court has the very same issue in front of it. We should wait to see what the highest court in the land is going to say."

California passed the law regulating tailpipe standards for automobiles in 2002 as part of its effort to reduce emissions of greenhouse gases and adopted the standards two years later. It has applied to the federal government for a waiver to let it implement the regulations under the Clean Air Act.

Business interests led by a Central Valley car dealership and the Association of International Automobile Manufacturers sued the state. They claim the rule is a de-facto mandate on fuel-economy standards, which can be set only by the federal government.

California is the world's 12th-largest producer of greenhouse gases. The auto rules are designed to cut emissions from cars and light trucks by 25 percent and from SUVs by 18 percent beginning in 2009.

A spokesman for Attorney General Jerry Brown said the state is awaiting the Supreme Court's decision. "We feel confident when that happens we'll be able to make the next step to enforcing the California law," spokesman Gareth Lacy said.

At a hearing in September, attorneys for the auto manufacturers said the technology did not exist to meet the California standards or could not be applied in a cost-effective way to cars sold in the United States. They argued the rules would increase the cost of vehicles and eliminate some types of trucks used by farmers.

In his 23-page ruling, Ishii sided with auto manufacturers by ordering the state not to implement the regulations without a waiver from the Environmental Protection Agency. Although state officials previously acknowledged they must wait for the waiver, the ruling relieves the industry from spending money to get ready for the possible mandate.

The Supreme Court is expected to rule later this year in a Massachusetts case about whether greenhouse gases should be regulated under the Clean Air Act. A decision in the case could have implications for California and 10 other states that have adopted the stricter California auto standard.

If the court or the federal government rejects California's tougher tailpipe-emission standards, the state must look elsewhere to achieve greenhouse gas reductions, according to a global warming law signed last year by Gov. Arnold Schwarzenegger. The law caps the amount of greenhouse gases in the state at 1990 levels by 2020. The auto regulations account for about a third of that target.

42. California Attorney General Pursues Global Warming Case Against Automakers

On February 1st, California Attorney General Jerry Brown indicated that he would continue to pursue his predecessor's nuisance claim against six automobile manufacturers seeking monetary damages for the impact of global warming. Brown, however, said he had invited chief executives of the auto companies to meet with him to discuss possible resolution of the lawsuit and a separate industry lawsuit that seeks to invalidate state regulations to curb vehicle-related emissions linked to global warming (see previous story).

At a news conference in San Francisco, Brown flatly rejected the automakers' argument that the state lacks a legal basis for filing the nuisance claim pending in the U.S. District Court for the Northern District of California.

On Dec. 15, attorneys representing the companies asked the court to dismiss the suit, contending it is "misconceived and pernicious."

Brown's office filed its response to the motion to dismiss on February 1st. Oral arguments on the motion will be heard March 6 in Oakland.

He called the lawsuit filed by former Attorney General Bill Lockyer "novel and complicated," but technically "strong." Brown was elected attorney general in November 2006 and took office in January.

General Motors Corp., Ford Motor Co., Toyota Motor North America Inc., Honda North America Inc., Chrysler Motors Corp., and Nissan North America Inc. are named in the suit.

The defendants' products emit greenhouse gases that cause global warming, the state's brief said. Global warming is causing and will continue to cause harm to California, the brief said.

As to specific harm, the state's lawsuit argued that warmer winters have resulted in reduced snow pack, which the state relies on for water. Rising sea levels, increased ozone pollution in urban areas, and increased wildfire risks were among other harmful global warming impacts the complaint cited.

The automakers' counsel argued in the Dec. 15 dismissal motion that the lawsuit would require the court to create a new federal common law claim of interstate environmental public nuisance that would raise judicially unmanageable "political questions." The defendants also contended the federal Energy Policy and Conservation Act and Clean Air Act preempt the suit and that the claim would interfere with foreign policy related to global warming.

In its response defending the lawsuit, the state said, "Under longstanding Supreme Court jurisprudence, a state's claim for redress of interstate pollution arises under federal common law. No federal statute provides an all-encompassing, comprehensive Clean Water Act-like scheme for addressing greenhouse gas emissions or global warming, or provides a remedy for the same, and as a result, no federal statute displaces federal common law." As for the preemption issues, the state's brief said there is no existing "federal detailed, multifaceted statutory approach to address the issue of global warming."

At his news conference, Brown said the ultimate objective is "to get a remedy, to get a result, and to prevent the catastrophic consequences of this global warming problem." "This is a serious problem that is not going away," he said. "California is firmly committed to dealing with global warming."

43. Pollution Destroying Pre-Aztec Mexican Ruins

Oil refineries and power stations pumping acid air pollutants along Mexico's Gulf coast threaten to erase carved stone murals at the pre-Aztec ruined city of El Tajin, according to a University scientist. Air pollution specialist Humberto Bravo said acid levels in the air around El Tajin, in oil producing Veracruz State, were among the highest in Mexico.

El Tajin's architecture is famous for intricate reliefs, many depicting an ancient Mesoamerican ball game sometimes compared to basketball.

"If nothing is done, within 10, 20 or 100 years, the hieroglyphics will disappear," said Bravo, from Mexico's UNAM University.

Bravo, who spent four years simulating the effects of polluted air and acid rain on El Tajin's soft limestone buildings, blamed the erosion on contaminants like chlorine, sulfates and nitrates in the air from power stations and oil refineries.

Veracruz and neighboring states are home to some of Mexico's most important oil facilities and ports.

El Tajin was built on the tropical coast of Veracruz by the Totonac civilization and was at its height from the early 9th to early 13th century.

The Aztecs, who ruled Mexico when the Spanish arrived, were at their strongest in the 13th and 14th centuries.

At its peak, the city, home to an elaborate niche-studded pyramid, was a power in an area that extended toward today's border with Texas and south into the realm of the Maya civilization.

44. NOAA Says 2006 Warmest U.S. on Record

The National Oceanic and Atmospheric Administration said January 9th that the El Niño effect and a long-term warming trend linked to greenhouse gases caused the warmest year on record for the United States in 2006. NOAA stopped short, however, of saying the degree to which the El Niño effect or greenhouse gas emissions influenced the warming.

"It is unclear how much of the recent anomalous warmth was due to greenhouse gas-induced warming and how much was due to the El Niño-related circulation pattern," NOAA said.

El Niño, which is Spanish for little boy, refers to an abnormal warming of water in the Pacific Ocean every three years or so that was responsible for causing warming in 1998, previously the hottest year for the United States.

NOAA's preliminary 2006 forecasting data, which was estimated in mid-December, would have made 2006 the third-warmest year behind 1998 and 1934. December ended as the fourth-warmest December since the agency began record keeping in 1895.

The average temperature in the United States in 2006 was about 55 degrees Fahrenheit, or 2.2 degrees (1.2 degrees Celsius) higher than the average temperature recorded between 1901 and 2000, and about 0.07 degree higher than in 1998, NOAA said.

In a written statement, NOAA is attributing the warm winter months, spanning October to December, to an El Niño episode. "The unusually warm winter months reflected the rarity of Arctic outbreaks across the country as an El Niño episode continued in the equatorial Pacific," the agency said. "It is known that El Niño is playing a major role in this winter's short-term warm period."

The agency did not rule out that greenhouse gas emissions are contributing to the long-term warming trend across the globe. NOAA said greenhouse gas emissions have made "warmer-than-average" conditions more common in the United States and other parts of the world.

U.S. and global annual temperatures are now approximately 1.0 degree Fahrenheit warmer than in 1900, and the rate of warming has accelerated over the past 30 years, increasing globally since the mid-1970s at three times the century-scale trend.

45. Bush Changes Rhetoric on Climate Change

US president George Bush's shifted his position on climate change when he described it in a key speech as a serious challenge. He also pledged to slash America's petrol consumption by 20 per cent over the next ten years in a bid to reduce its dependence on foreign oil.

This was the first time that Mr. Bush had mentioned climate change in his annual "state of the union" address to the US congress. Mr. Bush also told members of the congress of the need to become "better stewards of the environment".

The speech is being seen as a response to the intense pressure the Bush administration is now under from the newly Democrat-controlled congress and increasing numbers of state governments. Earlier this week, ten major US firms urged the president to introduce a mandatory cap on greenhouse gas emissions.

Mr. Bush's change in tone is likely to be seen by EU leaders as a significant step towards America's possible engagement in international negotiations on a post-Kyoto regime. Although it remains formally opposed to further global rules modeled on Kyoto, the US has agreed to start a dialogue with the EU on issues including carbon trading.

In his speech, Mr. Bush called for higher fuel efficiency standards for cars and a five-fold increase in the use of alternative fuels such as ethanol by 2017. New technology is the way forward to achieve this, he said.

46. President Seeks to Cut U.S. Research, Technology Efforts to Curb Global Warming

President Bush's fiscal 2008 budget unveiled on February 5th would cut funding in some climate change research and technology efforts the administration has touted in place of a program of mandatory limits on U.S. greenhouse gas emissions. Overall funding for the U.S. Climate Change Science Program, which coordinates research at nearly a dozen agencies and departments including NASA and the Environmental Protection Agency, would be cut 7 percent from estimated fiscal 2007 levels under the president's proposal.

The president proposed \$1.54 billion for CCSP efforts in fiscal 2008, down \$123 million from the estimated \$1.67 billion the program is to receive in fiscal 2007. The climate science effort was funded at \$1.7 billion in fiscal 2006.

NASA would be hardest hit and would face an 11 percent cut--down \$110 million from the estimated \$981 million it received in CCSP funding in fiscal 2007. For fiscal 2008, Bush requested a total of \$871 billion for the program.

Sharon Hays, deputy director for science at the White House Office of Science and Technology Policy, told reporters at a briefing that most of the \$123 million cut proposed in the CCSP is essentially an accounting change resulting from a transfer of funds from NASA's Earth Science Division into its Ground Network and Research Range program. The earth sciences program will largely continue but will be budgeted as part of NASA's more general operations program instead of its climate change program, she said.

Even taking that change into account, however, the overall climate change funding still would be lower in 2008 than in the current fiscal year under the proposal.

The interagency Climate Change Science Program was launched by President Bush in February 2002 to conduct an array of research into scientific uncertainties surround climate change.

The Department of Energy is one of the few departments or agencies that would see a slight rise in climate change science funding under the interagency effort. The president proposed \$130 million in CCSP funding for DOE in fiscal 2008, a 3 percent increase from the estimated \$126 million it is to receive in fiscal 2007.

The administration also provides climate-related funding outside the CCSP for individual agencies. DOE, which receives a significant portion of the administration's climate technology funding, would see increased funding for research in biomass, solar energy, and nuclear technology under the fiscal 2008 budget plan.

- The president would fund DOE nuclear research and technology efforts at \$802 million--nearly double the estimated \$428 million in fiscal 2007 funding.
- Funding of DOE research to convert wood byproducts and other biomass into fuel would nearly double to \$180 million in fiscal 2008 from the estimated \$92 million provided in fiscal 2007.
- DOE solar energy research, currently funded at an estimated \$83 million in fiscal 2007, would receive a \$65 million increase in fiscal 2008 under the budget plan.

The National Oceanic and Atmospheric Administration, however, would see cuts in its climate monitoring and research programs under the president's proposal. NOAA climate programs, funded at \$251 million in fiscal 2006 and roughly the same level in fiscal 2007, would be cut to \$240 million in fiscal 2008.

The NOAA Office of Oceanic and Atmospheric Research, which works on weather forecasts and climate prediction efforts, would get \$369 million in fiscal 2008, down \$10.8 million from the \$380 million Congress provided in fiscal 2006 and fiscal 2007.

NOAA's administrator, Conrad Lautenbacher, said that while OAR's budget would decline under the president's proposal, the overall budget includes sufficient funding to maintain observational satellites and other key climate monitoring efforts.

Overall, NOAA would receive about \$3.8 billion in fiscal 2008, down nearly \$100 million from its estimated fiscal 2007 budget as well as its fiscal 2006 funding level. However, Lautenbacher said, the \$3.8 billion request is still about 3.4 percent above what the president requested last year.

EPA's climate funding request includes \$4.4 million for its Methane to Markets effort, more than double the roughly \$2 million provided in fiscal 2006. The president proposed \$44 million for the Energy Star partnership program in fiscal 2008, a decrease from the roughly \$50 million level appropriated in fiscal 2006.

The fiscal 2008 budget also proposes \$5 million in EPA funding to support the Asia-Pacific Partnership on Clean Development and Climate announced by Bush in July 2005. The

partnership focuses on technological solutions for cutting greenhouse gas emissions. Its members are Australia, China, India, Japan, South Korea, and the United States.

47. Hydrogen Fuel Cell Outperforms Diesel Counterpart in Military Test

Air Force Materiel Command officials are tied to a project that could provide war fighters at remote bases with a cleaner, quieter way to power runway lights and other electrically powered devices. Air Force Advanced Power Technology Office, or APTO, officials held a December demonstration of a hydrogen fuel cell for providing power at remote locations.

The hydrogen fuel cell was developed by Battelle.

During the demonstration, halogen light units were powered by a hydrogen fuel cell, and also by a current generation light cart using diesel fuel. The diesel generator produced toxic emissions, an odor and considerable noise, along with electric power. The hydrogen fuel cell produced electric power with no emissions, no odor and almost no noise.

According to Battelle, the hydrogen fuel cell is 25 percent more fuel efficient than diesels. Fuel is converted to hydrogen by a reformer, and the hydrogen runs the motor (fuel cell) that produces electricity. The fuel used for the demonstration is S-8, the synthetic fuel used as a substitute for JP-8 jet fuel, which also powers ground devices such as airfield lights. It was synthesized using the Fischer-Tropsch (FT) process.

Since the conversion process within the fuel cell results in some sulfur with JP-8, which would damage the cell, further development is required to eliminate the last of the sulfur and put the fuel cell into military use.

The demonstration was the latest in a series held by the Air Force APTO in its effort to develop ways to make the Air Force less dependent on fossil fuels, especially from non-U.S. sources.

48. Cummins Settles 'Off-Cycle' NOX Emissions Charges With CARB

CARB announced that Cummins will pay \$1 million to settle charges that Cummins wrongly exceeded nitrogen oxides (NOx) limits on heavy-duty highway diesel engines sold during the late 1990s, allegedly in violation of a 1998 settlement agreement. "We are very pleased that Cummins is taking steps to reduce excess emissions from the heavy duty engines in question, and that they are cooperating by instituting recalls and retiring emissions credits," said ARB Executive Officer Catherine Witherspoon. Among the alleged violations of the 1998 settlement agreement, CARB says that Cummins obtained state certification for 11,600 heavy duty engines equipped with emission control systems that did not meet emissions requirements, omitted 26,347 engines from eligibility for the Low NOx Rebuild (Chip Reflash) program, and failed to complete work on and to submit reports for agreed-upon emission reduction projects in a timely manner. CARB investigated these violations jointly with U.S. EPA, which entered parallel agreements to settle these violations. "In addition to paying over \$1 million in penalties, as part of the latest settlement agreements Cummins is required to recall the 11,600 engines nationwide that did not meet state emissions requirements," CARB said.

49. Pemex Announces Fuel-Quality Upgrade Plan for Cadereyta Refinery:

According to a report from Spanish news agency EFE, "Mexican state oil giant Pemex has announced plans to invest \$600 million in making cleaner fuels at its Cadereyta refinery in the northern state of Nuevo Leon. The plan calls for building six new units at the plant and modernizing an existing one to make cleaner-burning, lower-sulfur gasoline, jet fuel and [ultra-low sulfur] diesel. Bids for the units' construction will be fielded this year, with construction set to begin by early 2009."

50. US Auto Industry Sees Higher Gas Prices, Tougher Standards

US auto executives are bracing for gas prices to more than double over the next decade and for sharply higher US fuel economy standards -- a step the industry has long resisted, according to an academic survey recently released.

Gas prices will average slightly more than US\$4 a gallon by 2015 and just over US\$5 a gallon by 2020, according to the survey conducted by the University of Michigan Transportation Research Institute (UMTRI).

UMTRI said it surveyed more than 100 powertrain experts, including chief executives, from across North America for the report.

"Our research reveals surprising agreement among all stakeholders in the automobile industry that fuel prices are on a steep upward trajectory," said UMTRI researcher Bruce Belzowski in a statement. "There is also consensus that fuel economy and emissions regulations will not just continue but substantially increase over the next decade," Belzowski added.

US retail gasoline prices have fallen in recent weeks to about US\$2 in many parts of the country after climbing to over US\$3 during the summer driving months last year. Rising gasoline prices last year prompted US consumers to move away from large fuel-guzzling sports utility vehicles to smaller, fuel-efficient cars and crossover vehicles.

The survey also said the US Corporate Average Fuel Economy (CAFE) standard for cars is expected to increase to 33 mpg in 2015 and 38 mpg in 2020 from the current 27.5 miles per gallon, while the standard for light trucks is expected to rise by 25 percent by 2015 and by 44 percent by 2020.

The UMTRI survey reveals that alternative-fueled engines will make up a larger part of the North American fleet in 2015. Alternative-fuel options include ethanol and gasoline blends, electricity, hybrid electric vehicles and hydrogen. Advanced diesel and hybrid technologies will be especially popular, according to the survey. The use of lithium-based batteries for hybrid systems is expected to increase significantly, the survey said.

51. Both Parties Assail White House CAFE Plan In Heated Hearing

House lawmakers from both sides of the aisle lobbed a slew of criticisms at the White House corporate average fuel economy (CAFE) proposal, finding fault with the Bush administration's lack of commitment to a specific increase and the failure to analyze the plan's effect on fuel consumption and the economy.

While rank-and-file lawmakers had varying levels of concern about the administration's intentions on CAFE, key members of the House Energy and Commerce Committee -- Democrat

and Republican alike -- consistently expressed skepticism over at least some portion of the plan during the hearing.

At the same time, several lawmakers -- among them committee Chairman John Dingell (D-Mich.) -- said Congress must change how it looks at CAFE and regard the program not only in terms of fuel use but also with climate change and alternative technologies in mind. "The issues have evolved, markets have evolved, and technology has evolved in ways not envisioned when we first wrote CAFE," Dingell said at the start of yesterday's hearing. "A system to regulate fuel economy, without considering the nature of the fuel or the level of greenhouse gasses it emits, may be inadequate."

The hearing marks the first time administration officials have directly attempted to sell Bush's CAFE plan for passenger cars to the Democratic-controlled Congress. Bush's proposal strongly resembles a rule enacted last year for light-trucks that modified the CAFE system to create different standards depending on vehicle size and other attributes. The Transportation Department already has the authority to raise CAFE standards, but it cannot modify the overall structure without congressional approval.

Administration officials say they envision such a change resulting in a CAFÉ increase of roughly 4 percent per year, resulting in fuel savings of 8.5 billion gallons by the time it is fully implemented. But during the hearing before the Energy and Air Quality Subcommittee, lead Democrats -- and some Republicans -- attempted to move the debate beyond just those factors and toward the broader legislative effort to address climate change.

As such, it remains unclear when the Energy and Commerce Committee will act on any CAFE proposal, whether it is the one put forth by the administration or some version drafted by committee leaders. Energy and Air Quality Subcommittee Chairman Rick Boucher (D-Va.), whose subcommittee has jurisdiction over the CAFE issue, said after the hearing that the committee will look to complete a slate of hearings on climate change and work to craft bipartisan legislation before it considers action on CAFE or another part of the climate change picture.

House Energy and Commerce Committee ranking member Joe Barton (R-Texas), an opponent of cap-and-trade proposals for greenhouse gas emissions, said during the hearing that vehicle emissions need to be a part of the climate change debate, though he was skeptical that Democrats would be willing to consider the same restrictions for vehicles as for power plants.

For his part, Rep. Ed Markey (D-Mass.), one the most vocal House proponents of mandating a CAFE increase, criticized the administration's proposal for failing to commit to a specific target for a fuel efficiency increase. The language sent to Congress by the White House does not set a minimum level for CAFE increases.

Nicole Nason, administrator of the National Highway Traffic Safety Administration, said the administration did not want to include a specific target without first conducting the adequate research. Nason also vowed the plan would result in some kind of CAFE boost. Still, Nason conceded at another point in the hearing that the final administration proposal may not reach the 4 percent increase.

On the other end of the spectrum from Markey, Rep. Fred Upton (R-Mich.) expressed concern that such an increase in CAFE could result in numerous job losses and could have a dramatic effect on consumers' pocketbooks. Upton said industry estimates have shown that Bush's

proposal could add about \$2,000 to the cost of some vehicles and cost the auto industry a total of roughly \$100 billion. "If we are reckless in our efforts, the consequences will be grave for auto manufacturing," he said.

52. Manitoba Offers C\$2,000 Rebate on Hybrid Cars

The Manitoba government will provide consumers with an automatic C\$2,000 (US\$1,700) rebate on purchases of eligible environmentally friendly hybrid electric vehicles, Science, Technology, Energy, and Mines Minister Jim Rondeau said on February 5th. The rebate program is retroactive for purchases starting November 15th and will be administered through a one-step rebate application that will form part of the vehicle registration process. "Hybrid electric vehicles use less fuel and produce fewer harmful emissions than conventional automobiles," he said. The rebate program is intended to provide a bridge until lower-emitting vehicles are more readily available, and will continue through November 15th, 2008, he said.

SOUTH AMERICA

53. Venezuela's Citgo Plans No Further Refinery Sales In 2007

The head of Venezuela-owned Citgo Petroleum Corp. said the company plans no further sales of refineries or other major assets next year, according to a media report. Houston-based Citgo, which is wholly owned by Venezuela's state oil company, sold its minority share in a Texas refinery to Lyondell Chemical Co. for \$2.1 billion earlier this year.

"In 2007, we are not planning the sale of any of our assets in other companies," Citgo President Felix Rodriguez told Venezuela's online Panorama newspaper in comments published recently. Rodriguez added, however, that Citgo would continue to review the profitability of its asphalt-producing business.

"If reports show us that profits are not the most optimum, we will probably leave that market and concentrate on the sales of other byproducts," he said. Citgo Asphalt Refining Company is a leading supplier of asphalt on the U.S. east coast.

The company plans to maintain refinery production at about 840,000 barrels a day for the next four years and, instead of expanding its business, concentrate on producing better quality products, such as low-sulfur diesel and lubricants that are in line with U.S. market regulations, Rodriguez told Panorama.

"Today, the company is working and seeking an equilibrium between the minimum investment necessary and (maximum) profits," Rodriguez was quoted as saying.

Citgo's profits increased 30 percent in 2006 and it will pay parent company Petroleos de Venezuela SA, or PDVSA, \$800 million in dividends this year, up from \$750 million in 2005, Rodriguez said.

Rodriguez also said net revenue is expected to reach \$1.5 billion by the end of 2006.

On Citgo's program that offers discounted heating oil to low-income U.S. households, Rodriguez said in 2006 the company supplied 378 million liters of fuel at a 40 percent discount, which has benefited 2.2 million Americans in 16 states.

54. Brazil, U.S. Pledge Closer Cooperation To Promote Production, Trade of Ethanol

Brazil and the United States will establish a bilateral working group to strengthen cooperation to develop and promote biofuels, a spokesman for Brazil's Ministry of Development, Industry, and Foreign Trade has announced. Plans for the working group were discussed at a meeting in Brasilia between U.S. Undersecretary of State Nicholas Burns and Brazilian Minister of Development, Industry, and Foreign Trade Luiz Fernando Furlan on February 7th.

The United States and Brazil produce 70 percent of the world's ethanol, in more or less equal amounts, a spokeswoman for UNICA, the main Brazilian ethanol producers' association, said. The United States makes ethanol primarily from corn, however, while Brazil makes it from sugarcane, which is far cheaper and more efficient.

Brazil was responsible for 65 percent of global ethanol exports in 2006; 57 percent of Brazil's ethanol exports went to the United States, and 11.8 percent went to Central American and Caribbean countries, where some of it was further processed and re-exported to the United States under no-tariff trade agreements, according to UNICA. Brazilian ethanol exports directly to the United States are subject to heavy tariffs.

Undersecretary Burns was quoted as saying "we would like a research agreement that would free us from oil, which is causing us economic losses. ... The United States and Brazil need to encourage other countries to produce more so that ethanol can become an export commodity." Some analysts reportedly interpreted this to mean the United States hopes to promote ethanol as an alternative to gasoline throughout Latin America to help lessen the influence of Venezuela, the leading petroleum exporter in the region.

U.S. President George W. Bush, in his State of the Union address, proposed that the United States reduce gasoline consumption by 20 percent by 2017, largely by replacing it with ethanol and other alternative fuels.

ASIA PACIFIC

55. Japan Imposing Tougher Vehicle Fuel-Economy Limits by 2015

The joint meeting of the panels of the Ministry of Economy, Trade and Industry and the Ministry of Land, Infrastructure and Transport on Friday has agreed on the new fuel efficiency standards, which will be imposed on passenger cars, small buses and small trucks in fiscal 2015. The ministries plan to revise regulations as early as summer. According to the agreement, cars, including diesel engine models, will be required to run 16.8 kilometers on one liter of fuel under a specified driving mode. The figure is 23.5 percent more than an average of 13.6 km/l in fiscal 2004. The fiscal 2015 targets for small buses and small trucks are set at 8.9 km/l and 15.2 km/l, respectively, up 7.2 percent and 12.6 percent from fiscal 2004 averages of 8.3 km/l and 13.5 km/l. The current standards require fuel efficiency of 15.1 km/l on passenger cars by fiscal 2010.

Vehicle fuel economy will be tested using a new method called "JCO8," instead of the current 10-15 method. The new method more accurately reflects actual vehicle performance, the recommendation said. An official of the Japan Automobile Importers Association said the new method is similar to one currently used in Europe.

The plans call for using METI's "top-runner" method, under which authorities set targets based on the most effective technologies in a given area and then provide incentives for their adaptation across an industry.

Carmakers and importers that fail to meet the standards will be subject to a penalty of ¥10 million (\$83,000) and public disclosure, according to the recommendation.

56. Move by Japanese Government to Settle Tokyo Lawsuit May Lead to Stricter Rules

On February 2nd, the Japanese government indicated it would move to settle out of court a series of lawsuits seeking compensation for health damages caused by air pollution in Tokyo. In taking the step, the government acknowledged some responsibility for the damaged health of residents living near major roads. The concession is expected to mean that Japan will further tighten regulations on automobile emissions. It may also increase the likelihood that seven automakers which are listed as defendants will have to pay damages.

Environment Minister Masatoshi Wakabayashi said that given the plight of the plaintiffs, who suffer asthma and other respiratory illnesses, the state's policy is to avoid prolonging the lawsuit proceedings. "We will proceed with dialogues with the plaintiffs to explore for a settlement," a spokesman quoted Wakabayashi as saying. A ministry official said Wakabayashi's comments did not mean that the state would pay medical expenses to the plaintiffs, as sought in the lawsuit.

Wakabayashi's comments were in response to the Tokyo High Court's requests to the parties in the lawsuit last September to try to settle out of court. In response, the Tokyo municipal government in October 2006 proposed to the plaintiffs a settlement scheme in which the state and the municipal governments would each pay one-third of the plaintiffs' medical costs, with the remainder to be shared by the seven automakers and the former metropolitan expressway corporation.

Toyota Motor Corp. and other automakers had expressed willingness to accept the municipal government proposal, according to the Environment Ministry official.

Wakabayashi reiterated that the state will not change its stance of refusing to pay for the plaintiffs' health costs, the spokesman said.

Junji Nishi, the head of the plaintiffs, welcomed Wakabayashi's comments but said they had not yet agreed on the terms for a settlement.

A total of 505 plaintiffs have joined the lawsuits since the case was first brought to the Tokyo District Court in May 1996. By November 2000, plaintiffs had since filed four lawsuits against the state, the Tokyo municipal government, the former metropolitan expressway corporation, and the seven automakers including Toyota Motor Corp. and others that manufacture diesel vehicles.

In October 2002, the local court held that the state, the municipal government, and the former expressway corporation were liable for respiratory illnesses suffered by seven of the plaintiffs

but rejected the plaintiff's lawsuit for a court injunction against the seven makers to sell diesel vehicles, according to Ministry of the Economy officials.

In response, the Tokyo government and the seven plaintiffs reached an out-of-court settlement in which Tokyo agreed to pay for the plaintiffs' medical expenses, according to ministry officials. But the state and the two corporations appealed the cases to the Tokyo High Court, they said. The Tokyo plan, which has yet to be accepted by the state and the road corporation, costs approximately 4 billion yen (\$33 million) per year.

Asked to clarify the state's position after Wakabayashi's comments, an official of the Ministry of Land, Infrastructure and Transport (MLIT) said the Japanese government now is exploring tougher automobile emission standards on nitrogen oxides, sulfur oxides, and fine particulate matter, and is also developing technologies for cleaner engines and fuels.

Outside of Tokyo, plaintiffs initiated similar lawsuits throughout the 1980s to 1990s in several other major Japanese urban areas including Nagoya, Amagasaki, Kawasaki and Yokohama. In settling some of those lawsuits, state and local governments and the former road corporation agreed to take measures to reduce traffic on major arteries.

According to an Environment Ministry official, the Tokyo case could force state and city authorities to toughen emissions standards, to introduce road tolls, to take steps to reduce traffic jams by encouraging rail transportation, or even to ban the use of certain vehicles in areas of heavy air pollution. It could also lead to tougher standards under the 1992 NOx and PM law, an official at the MLIT's environmental division said.

57. Study Says Car Increase Hurting Delhi's Anti-Pollution Drive

Efforts to cut air pollution in Delhi through the use of cleaner fuel in public transport are being undone by the growing number of vehicles on the roads, according to a new study by Resources for the Future (RFF). It found that sulfur dioxide and carbon monoxide levels -- which cause respiratory and heart problems -- have dropped by about 80 percent and 70 percent, respectively, since 1997. But nitrogen dioxide levels have increased by about 30 percent to 100 micrograms per cubic meter since then, well above the permissible limit of 60.

"Delhi's CNG (Compressed Natural Gas) program has made a huge difference to air quality and contributed significantly to a drop in sulfur dioxide and carbon dioxide levels," Urvashi Narain, who is also a fellow at RFF, told a news conference. "But these gains will be lost if the number of cars on the roads continue to increase as this is increasing nitrogen dioxide levels, which is an emerging threat," she said, adding that New Delhi's three coal-based power plants were also to blame.

Narain said the levels of suspended particulate matter -- which causes chronic bronchitis and asthma -- had remained stable from 1997 to 2005, but the sharp increase in diesel-driven or petrol-driven vehicles were negating the benefits of the CNG in buses, auto-rickshaws and many taxis.

The number of vehicles on New Delhi's roads has increased from about 1.5 million in 1997 to an estimated 2.7 million in 2005, the RFF study said.

58. Maruti Launch May Speed India's Switch to Diesel

India's top car maker Maruti Udyog Ltd.'s long-awaited entry into the diesel sector should fill a gap in its line-up and speed up a shift to diesel in the fast-growing market. J.D. Power estimates diesel's share of India's passenger vehicle market will grow to 35 percent by 2010 from 30 percent now as new models and advanced technology attract the young and better-off to join the cost-conscious.

India subsidizes diesel prices -- that are 40 percent cheaper than gasoline -- to help poor farmers who use it for power and irrigation.

Auto makers including Tata Motors Ltd., Hyundai Motor Co., Ford Motor Co. and Volkswagen's Skoda are stepping up their diesel output to meet rising demand.

This is Maruti's second attempt after an earlier entry with diesel engines from PSA Peugeot Citroen fizzled out. Maruti, majority-owned by Japan's Suzuki Motor Corp., is offering two diesel variants of its Swift hatchback with a 1.3-litre Fiat multijet engine that it is making at a new plant with a capacity of up to 300,000 units. It will also export engines to Suzuki's plant in Hungary.

The new Swift diesel sells at \$10,611-\$11,222 against \$9,600-\$11,855 for the petrol version.

Car manufacturers are stressing power, fuel-efficiency and eco-friendliness to counter a perception that diesel is loud, noisy and packs less punch than gasoline. Diesel quality has also improved, and retails with lower sulfur levels. Environmentalists argue that without advanced PM and NOx controls, however, the rise in diesel cars is damaging urban air quality.

Because of the subsidized diesel fuel price, J.D. Power estimates the variable cost of operation is about 25 percent less per kilometer with a diesel engine. The Swift diesel car also qualifies for a lower 16 percent excise duty versus 24 percent for its petrol variant.

Maruti, which has nearly half India's 1 million-plus passenger vehicle market, has met only a tepid response to its Omni and Versa compacts, compared to strong Swift sales.

Most of Tata Motors' car sales are diesel models of its Indica hatchback and Indigo sedan, both of which have proved a hit with fleet operators.

Tata and partner Fiat are setting up a plant to make 200,000 engines, including possibly a 1.3-litre diesel engine.

Hyundai's Accent and Verna diesel models, featuring the common-rail engine technology, are seeing impressive sales, while more than 70 percent of Ford Fiesta's sales are of the diesel variant fitted with a 1.4-litre engine.

Hyundai is investing \$500 million in a new engine and transmission plant with capacity of at least 400,000 petrol and diesel engines, while Ford is also said to be setting up a plant to make 100,000 1.4-litre diesel engines.

General Motors has said it may set up a diesel engine plant and launch a diesel variant of its Optra sedan this year. The Logan sedan from Mahindra & Mahindra's joint venture with Renault -- another eagerly awaited 2007 launch -- will also have a diesel variant.

59. Tax Cuts On Diesel Cars Cost Indian Government Dearly

Diesel cars are costing the government exchequer dearly, with a revenue loss of around Rs 30 crore a month in the national capital alone. With diesel cars expected to account for nearly 50 per cent of new car sales in the country by 2010, the government is set to suffer progressive revenue loss from this segment, according to a study by the NGO Center for Science and Environment (CSE).

The fuel economy report released by the CSE says that on an average, the government suffers a Rs 30 crore revenue loss every month from purchase of diesel cars in Delhi. "If we take into account the countrywide fleet of diesel cars, then the revenue loss may run into several hundred crores," Anumita Roychoudhury, Associate Director of CSE, told the press.

The report says with the forthcoming Union Budget, market analysts are expecting more tax cuts for cars, and this time big diesel cars could get concessions.

60. Seeking Elusive Air Pollution Data, Court Tells Agencies

"It's high-time the citizens of Delhi knew what kind of air they have to breathe," the Delhi High Court told the Central and State Pollution Control authorities, passing a stern order to file a report on air pollution levels at the Capital's five "traffic congested" parts during peak hours. A Division Bench, headed by Justice Swatanter Kumar, also declined to put on record a report filed by the Delhi Pollution Control Committee (DPCC), saying "the document is based on existing data, which is not the intention of the court".

The court had directed the DPCC to file a detailed report after examining air samples from the five "most congested" spots in Delhi — Connaught Place, Karol Bagh, South Extension, Dwarka and ISBT. The Bench dismissed the Committee's contention that it was not "authorized" to take air samples without permission from the Central Pollution Control Board (CPCB). Dismissing it as a mere attempt to "pass the buck", the court ordered both CPCB and DPCC to file the environment report by the next hearing — February 6.

"The excuses of the officers present in the court (of both CPCB and DPCC) are not worthy of our attention. They are given a last opportunity to file the report," the Bench said in the order.

Irrked by the authorities dilly-dallying on who is to file the report, the court said: "This is not a picnic spot. Decide between yourselves over a cup of coffee on who is to file the report, but make it a point to file it on the next date".

The court also directed the pollution authorities to file an affidavit along with the report, stating ways to restrict noise pollution and "provide citizens with clean air".

The order came in response to a PIL filed two years ago by a citizens' forum — "Delhi Villagers' Development Association" — highlighting the increasing levels of noise and air pollution. The forum had quoted various environmental experts saying that the Capital was fast turning into a "gas chamber" with the large number of diesel vehicles plying. Thirty per cent of patients in hospitals, it said, were suffering from breathing problems, lung diseases and cancer.

Referring to a WHO study that diesel particulates were carcinogenic, the petition said over 15,000 diesel vehicles ply the roads of Delhi everyday to reach wholesale markets.

61. Indonesia to Tighten Diesel Sulfur Levels in March

Indonesia will impose a maximum sulfur content of 3,500 parts per million (ppm) for diesel from March, down from 5,000 ppm, according to a senior energy ministry official, a move that may prompt state-run Pertamina to increase diesel imports. This is part of a global trend to cut sulfur from motor fuels and in line with plans announced last year by Indonesia, Asia's top importer of diesel.

"We will tighten controls on diesel oil import which we will allow maximum 3,500 ppm sulfur from March," Erie Soedarmo, a director at the mines and energy ministry, told the press.

State oil firm Pertamina, which had expected to import steady volumes of oil products in February at 9.6-9.8 million barrels, said it might have to boost diesel imports above planned levels to meet the March target. "The volume of domestic output will fall if the government imposes 3,500 ppm diesel sulfur. We may import more diesel in future," Djaelani Sutomo, Pertamina's oil products marketing chief, said. "We have sent a letter to the government to take into consideration the possibility of more diesel imports," he said.

Sutomo said Pertamina should be able to meet the government rule, but there were some risks attached to fulfilling the plan. He did not elaborate. Sutomo said Pertamina was currently importing between 4.0-5.5 million barrels of diesel oil monthly.

Traders said Indonesia might have to continue importing more diesel as its unsophisticated refineries may not have fully upgraded their hydrotreater units, which reduce sulfur. "It will take at least two years for Pertamina to upgrade their plants. For the time being, they will have to operate at lower throughput to make lower sulfur gas oil given their current conditions. There will also be a lot of logistical complications," said a middle distillate trader from Singapore.

Soedarmo said the ministry eventually planned to require a diesel oil sulfur content of below 3,500 ppm, but gave no time frame.

Countries around Asia have been cutting down on sulfur, blamed for acid rain and lung problems, with regional leader Japan already using fuel with just 10 ppm sulfur.

The move by Asia's top buyer of 5,000 ppm, or 0.5 percent, sulfur fuel could spell the death of the grade as a pricing benchmark in Asia, traders said. Lower sulfur fuel is currently priced as a premium to the benchmark 0.5 percent sulfur grade.

62. Emissions Tests Seen As Best Way to Curb Motorcycle Growth in Jakarta

The government has called on the Jakarta administration to enforce emissions testing for motorcycles to control the increasing number of motorbikes in the city. The State Ministry for the Environment said motorbikes that failed to meet emissions standards could be banned from the city's streets.

"It would be a more realistic way of limiting motorcycles than the planned restrictions on certain streets," Endang Nuryastuti, a mobile source emission pollution control official at the ministry, told The Jakarta Post.

In 2006 the ministry issued a decree on emissions standards for both two- and four-stroke motorcycles and measuring carbon monoxide (CO) and hydrocarbon (HC) content. Endang said that more than 60 percent of the 250 motorcycles tested in spot checks in 2005 did not meet emissions standards set by the government in 1993. "Therefore, we think that more motorcycles would not meet the newer, tougher emission standard issued in 2006," she said.

The Jakarta Transportation Board has estimated that more than three million motorbikes are on the city's roads every day, compared to 2.5 million cars. "With such huge numbers, motorbikes are the main contributors of air pollution in the city," Endang said.

Environmental experts have said the transportation sector contributes up to 80 percent of the city's air pollution.

The plan to ban motorbikes from certain streets was announced by Governor Sutiyoso last week. He said the administration was considering banning bikes from main streets during peak hours and that motorbikes were responsible for the city's infamous traffic congestion. Sutiyoso asked people to leave their motorbikes at home and take the bus to work.

The Jakarta Environment Management Board (BPLHD) said that the administration might adopt the emissions standards issued by the government. "However, we have not decided yet whether to perform emissions tests for motorcycles this year. We are still focusing on tests on private cars," Yosiono Anwar Supalal, BPLHD's air control division head, told the Post.

BPLHD earlier pledged to start conducting tests for motorcycles in March or a month after the emissions tests on cars came into effect. Yosiono said his office had discussed the possibility of emissions tests with several motorcycles manufacturers in the city.

Emissions standards for motorcycles				
Category	Year of Production	Parameter	CO (%)	HC (ppm)
Two-stroke	Before 2010		4.5	12,000
Four-stroke	Before 2010		5.5	2,400
All motorcycles after 2010			4.5	2,000

Sources: State Ministry for the Environment

63. NZ Government Getting Tougher On Imported Vehicles

New Zealand's Associate Transport Minister Judith Tizard has announced measures to restrict imports of vehicles with older technology to help reduce vehicle emissions which contribute to air pollution and climate change. "We are proposing to introduce a vehicle emissions technology standard that vehicles will need to meet before they can be imported. We'll then test them at the border to make sure that they meet the standard."

The Transport Ministry has been given the go ahead by Cabinet to draft a Rule outlining options for entry restrictions on vehicle imports, which will be released for industry and public consultation around March next year. The Minister says the draft Rule would set out a series of steadily increasing standards that used vehicles would have to meet and which may be ready to be implemented in 2008.

The Rule will also update emission standards for new vehicles to ensure they meet current international standards and take advantage of the higher standard fuel standards introduced to New Zealand in January this year and those planned for 2009. The minimum exhaust emission standard proposed for petrol cars is the Japanese standard, introduced in Japan from 2000, and proposed to be implemented here from 2008. For diesel vehicles, it is proposed to implement the Japanese standard which was introduced there from 2002, and could be implemented here from 2009.

"The Energy Outlook to 2030 shows that if we do not change our policy settings, transport greenhouse gas emissions will increase by 35% over the next 25 years. We cannot - and will not - let that happen," said Judith Tizard.

The measure is one of several government initiatives to improve vehicle emissions, including tougher emission standards for new vehicles; cleaner diesel fuel; and the introduction of the visible smoke check as part of the warrant of fitness.

"In addition higher quality vehicles will also help to improve the fuel economy of the country's fleet and improve vehicle safety," the Minister says.

64. New Zealand Prime Minister Announces Plans to Make Country 'Carbon Neutral'

On February 13th, Prime Minister Helen Clark in her annual Prime Minister's statement expressed her government's aspiration for New Zealand to become carbon neutral. Clark also announced a series of concrete supporting measures that would be implemented in the near future.

"I believe New Zealand can aim to be the first nation to be truly sustainable--across the four pillars of the economy, society, the environment, and nationhood," Clark said. "I believe we can aspire to be carbon neutral in our economy and way of life."

"Traditional patterns of development and fast growing populations were putting an intolerable strain on the planet and the future economic costs of doing nothing were dire," Clark added. "That's why issues around sustainability and climate change have become the compelling issues of our times."

More tangible steps outlined by the prime minister included a "biofuels sales obligation." This would require oil companies as of April 2008 to begin selling biofuels as a proportional of total fuel sales, reaching 3.4 percent by 2012. This is slightly more ambitious than the 2.25 percent target announced last year.

Energy and Climate Change Minister David Parker in a separate statement on February 13th said the government's decision was a starting point. "Once the infrastructure is in place, biofuels are expected to make up a greater proportion of our transport fuel than these mandated minimum levels," he said.

Parker said the obligation would reduce greenhouse gas emissions by more than 1 million tons of carbon dioxide-equivalent between 2008 and 2012.

On the topic of New Zealand becoming carbon neutral, Clark said the government intends to lead by example by moving the public sector toward carbon neutrality. She said that initially a

group of six departments (the ministries of the environment, health, and economic development, and the departments of inland revenue and conservation, and the treasury) would significantly reduce their carbon footprint by early next year and would reach carbon neutrality by 2012 through a combination of emission reductions and offsets.

The government will also leverage its power as a purchaser of goods and services and will develop a single procurement policy requiring sustainably produced goods and services to be used whenever possible, she said.

As a first step, the government would gradually replace its own car fleet with more fuel-efficient vehicles. This would reduce fuel consumption by 400,000 liters and carbon dioxide emissions by 550 tons over three years.

65. China Fails to Meet National Environment Goals

China failed to meet its own antipollution and energy efficiency targets in 2006, indicating the country is not on track to meet its goals for 2010 either, government officials said. Only Beijing and five other jurisdictions across China met targets for reducing energy use and emissions last year, the official China Daily quoted Han Wenke, director of the Energy Research Institute in the National Development and Reform Commission, as saying. "From a nationwide perspective, it is certain that last year's energy-consumption reduction goal could not be achieved," Han said. Goals included reducing energy intensity by 4 percent and reducing emissions by 2 percent. Officials did not provide figures indicating how much the targets had been missed by. The current five-year plan, which ends in 2010, calls for energy intensity to be reduced by 20 percent and pollution emissions to be reduced by 10 percent from 2005 levels.

66. China Tightens Pollution Monitoring To Better Achieve Future Targets

China planned to step up its monitoring of harmful emissions in an effort to avoid missing pollution-reduction goals for a second year, state media has reported. The State Environmental Protection Administration (Sepa), China's environment watchdog, would spend two billion Yuan (about R1.5bn) to set up new pollution statistics, monitoring and accountability systems within 18 months, reported the China Daily.

"The systems are expected to improve China's statistical and monitoring capabilities on the environment and sharpen its law enforcement," the paper quoted Sepa director Zhou Shengxian as saying.

China, whose economic boom has given rise to massive and harmful pollution nationwide, last year missed targets to reduce emissions of major air and water pollutants by 2%, with levels actually rising by that amount. Zhou blamed provincial and local-level governments bent on achieving economic growth at all costs for the failed targets.

The central government also said that some provinces might have falsified emissions data to stay within compliance of the goals.

The problem is expected to be a key issue of discussion in China's National People's Congress, the annual parliamentary meeting officially which begins soon.

The new systems would improve the collection of statistics, introduce more advanced and precise monitoring and hold governments at all levels accountable for pollution in their area, the paper said.

Zhou said he was confident that the 2% reduction goal could be met this year, but emphasized that success or failure depended on the efforts of local governments in China's highly decentralized administrative system.

China has one of the worst pollution problems in the world. A Sepa report late last year said air pollution in urban areas was affecting the health of millions. It said 11 major cities, including the capital Beijing, were plagued by serious air pollution on more than a third of days in 2006, damaging the health of 15 million people.

67. China Bars New Projects Because of Pollution Violations

China will bar 82 companies and four whole cities from any new large development projects until they address environmental violations, the State Environmental Protection Administration (SEPA) announced on January 10th. The companies and cities are charged with violating China's environmental impact assessment rules. Planned investments worth 112 billion Yuan (\$14.4 billion) will be blocked by the action, SEPA said in a statement.

The list includes four of China's leading power companies: China Huaneng Group, China Datang Corp., China Huadian Corp. and China Guodian Corp. It also includes the cities of Tangshan, Luliang, Liupanshui, and Laiwu, relatively small cities in four separate provinces.

Vice Minister Pan Yue said in a statement that many of the companies in question had developed polluting projects without conducting the required environmental impact assessments, and others had failed to comply with environmental standards. The entities have three years to bring their projects into compliance, he said.

Whether the measure will be effective remains to be seen. SEPA's power is limited to approving or denying EIAs for large or heavily polluting projects.

Pan said SEPA will try to further engage local governments in enforcement. However, fines for failing to meet EIA requirements remain light, averaging about 20,000 Yuan. The listed cities "do not have the environmental capacity to handle more pollutants, and yet they still develop industries that consume a lot of resources and produce a lot of pollution," Pan said.

The four cities were cited as examples of "bad development," where the majority of new projects in recent years have failed to meet basic standards.

68. Improving Beijing's Pollution Getting Tougher

Beijing had "good air" on nearly two thirds of days last year but progress on beating pollution will be more difficult in the 20 months until the Olympics, a city official said recently. When it bid to host the Olympics, Beijing made commitments to improve the environment in the city and one of the three pillars of the Games is "Green Olympics".

The environment department in the notoriously smoggy Chinese capital assesses air quality on a daily basis and with regard to particulate matter, 241 days last year had acceptable pollution

levels. Although many Beijing residents scoff at the statistics, environment Chief Shi Hanmin said, even if there were tough challenges ahead, it was a vast improvement on 1998 when there were just 100 "blue sky" days.

"I face so many challenges," Shi told a news conference. "Although we have improved air quality for the last eight years, we cannot be complacent."

The city spent 20 billion Yuan (US\$2.57 billion) fighting pollution last year, taking 15,000 old taxis and 3,000 old buses off the road, closing down a large chemical factory and starting the process of moving a huge steel plant to neighboring Hebei province.

The emissions from five large power stations in the city have been treated to remove pollutants and dust, while 15,000 industrial boilers in the city center have been upgraded.

Further reductions of 10 percent in the sulfur dioxide levels and 245 "good air" days had been targeted for 2007, Shi said.

"We have already finished the easy tasks and now we face the most difficult challenges," he added. "The progress will be slower from now on. We have made some achievements but we have a long way before we have reached international standards on air and noise quality."

69. Beijing Has More And More Cars

Beijing registered a record 22,079 new motor vehicles in just the first 18 days of the year, as city planners brace for the number of cars, trucks and busses to speed past three million by May.

"We issued more than 2,400 license plates in a single day," said a spokesman with Beijing Municipal Traffic Management Bureau. He attributed the sharp rise in the number of registered new motor vehicles to a buying spree that usually occurs before Spring Festival, which fell on February 18 this year.

There are now 2.88 million motor vehicles in Beijing, including 2.06 million private vehicles. The number of people with driver's licenses now exceeds 4.24 million. It is estimated the number of motor vehicles will top 3.3 million by the time the Beijing Olympic Games are held in 2008.

Chinese experts say that while there are fewer cars in Beijing than in London, Tokyo and Paris and Bangkok, Beijing's drivers use their cars more frequently. "Private car owners in the capital use their cars four times more frequently than private car owners in Tokyo," an expert said, blaming the high use of private cars for road congestion and serious air pollution in Beijing.

Zhai Shuanghe, deputy director of the Beijing Municipal Traffic Management Bureau, says "increasing the length of roads can never catch up with the growth in the number of motor vehicles." Zhai said traffic jams are hampering the city's ability to respond to accidents in its downtown, adding there were 5,808 road accidents in the Chinese national capital last year, which cause 1,373 deaths.

A report on living quality in Chinese cities in 2006, published by Beijing International Institute for Urban Development last September, says the traffic in Beijing is the most unsatisfactory among 287 Chinese cities.

Mayor Wang Qishan is determined to change this by taking a range of measures to encourage more people to use public buses, including slashing public bus travel fares beginning from January 1. The municipal government has earmarked 4.98 billion Yuan (about 622 million US dollars) for development of public transport this year, a rise of 1.31 billion Yuan (164 million US dollars) from last year.

In the meantime, the municipal finance will also spend 11.67 billion Yuan (1.4 billion US dollars) in financing improvement of public transport infrastructure this year. The city has also pledged to spend 100 billion Yuan (12.6 billion US dollars) more in years ahead so that public transport will become a prime form of people's traveling in the city.

The city's subway and light rail systems will be extended to 273 km in 2010 and to 568 km in 2015.

70. Beijing Gives Priority To Buses

In an effort to cut private car use and promote public transport, the Chinese government will provide a total of 1.3 billion Yuan (US\$167 million) this year to help Beijing's bus companies reduce fares to only 1 Yuan (US\$0.13) per ride. Passengers and students using the "smart card," an electronic debit card for transportation, will pay even less — only 40 cents (US\$0.05) and 20 cents (US\$0.025), respectively, Xinhua News reports. The new subsidy measure is being called "a revolutionary step in Beijing's public transport planning" and aims to reduce private car use and ultimately relieve the city's infamous traffic jams.

Reducing the bus fare is only the first step in Beijing's public transport reform; other measures in line include reorganizing the existing bus network, developing additional transit systems, and building 26 free or low-cost parking lots near subways and bus stops to encourage drivers to take public transport to downtown areas. The city is also home to China's first bus rapid transit (BRT) system, a 16-kilometre-long section that opened in December 2004.

But for Beijing residents who already drive a car, convenience, punctuality, and the overall quality of the bus service are typically more important than the fare itself. Nearly 70 per cent of the city's roads are occupied with cars, while buses take up about only 10 per cent of this space, according to Xiaoming Liu, vice director of Beijing Transportation Bureau. Beijing was home to an estimated 2.87 million motor vehicles at the end of 2006, an increase of 370,000 from the previous year, and the figure is predicted to reach 3.8 million by 2010.

In 2006, the local government spent nearly 11.7 billion Yuan (US\$1.5 billion) on improving and expanding roads, subways, and other road facilities in Beijing, mainly to accommodate the surge in car use. But policymakers realize the limitations of these efforts, and the city is now placing unprecedented emphasis on public transport. This year alone, it plans to invest nearly 4.15 billion Yuan (US\$535 million) to subsidize public buses, optimize bus routes, and improve bus services; another 8 billion Yuan (US\$103 million) will be used to further develop the transit system.

71. Neighbors to Help Clean up Beijing's Air

Faced with the threat of substandard air quality, Beijing has set up a regional coordinating group to ensure blue skies during the Beijing 2008 Olympic Games, the capital's environmental director told a news conference. Municipalities and provinces around Beijing, such as Tianjin,

Hebei and Shanxi, will take part in the group to help control trans-boundary air pollution, said Shi Hanmin, director of the Beijing Environmental Protection Bureau.

"2007 is a year of decisive battle for the Olympic Games," Shi said.

Beijing has set a target of 245 days of blue skies this year, or about 67 percent, four more days than last year.

In addition, the capital has committed to ensuring that the amount of pollutants like sulfur dioxide, nitrogen dioxide, nitrogen monoxide and inhalable particles in the air will be within the national standard in August 2008, when the Games are due to be held.

"Except for inhalable particles, Beijing's air is already within the national requirement," Shi said. However, reducing the amount of inhalable particles in the air remains a difficult problem, which is why Beijing is seeking cooperation from its neighbors, Shi said.

Detailed plans about how the coordination will work are still in the pipeline.

Last year, the capital focused efforts to improve its air quality by relocating a coking plant from downtown, eliminating heavy exhaust-emitting automobiles, and replacing coal with natural gas as a major source of energy. As a result, sulfur dioxide emissions fell by nearly 8 percent last year compared with 2005.

"But Beijing's air quality is still not within the requirements of the green Olympic Games," Shi said.

Automobile exhaust has become a major source of air pollution. There are about 300,000 automobiles that emit high levels of exhaust on Beijing's streets. "The pollutants from one such car are equivalent to exhaust emissions from 14 cars of the EU 3 standard," Shi said.

Shi said the capital would get more than 60,000 high-emission taxis off the streets and equip 10,000 buses to run on clean fuel before the Games.

"The battle to improve the city's air quality has hit a bottleneck," Shi said. "The capital has implemented almost all the measures it could possibly adopt."

Last year, Beijing spent 20 billion Yuan (\$2.5 billion) on environmental protection. During the 11th Five-Year Plan period (2006-10), the capital will invest 72 billion Yuan (\$9 billion) to improve its environment.

72. Lanzhou to Walk Off Pollution

So serious is the air pollution in Lanzhou, capital of Northwest Gansu Province, this winter that Mayor Zhang Jinliang has asked civil servants to walk to work on days when the pollution level is very high. The local environment protection administration will map out a contingency plan for such days when the city needs to be saved from more automobile and industrial emissions.

Despite the best efforts of the local government and its people to improve the environment, Lanzhou is reputed to be one of the 10 most polluted cities in the world. Gansu's capital sits in a

valley, making the movement of wind very difficult. Slow wind speed, heavy vehicle emissions and a dry and dusty winter have worsened matters this year.

To prevent the situation from deteriorating any further, the local government issued a notice on January 8 banning the demolition of urban structures from November to March.

Lu Zhaowen, director of Pollution Control Section of Lanzhou Environment Protection Bureau, said: "Along with other measures, we suggested that civil servants walk to and from their offices on days when the pollution level is very high to reduce vehicle emission."

Regional development expert Guan Lianji attributed the grave situation to three main factors: heavy industrial emissions, use of coal as the main source of fuel and special geographic and climatic conditions of the city.

Frequent sandstorms, dry and dusty weather, and a lack of precipitation aggravated the situation last year, said Lanzhou Meteorological Center's chief forecaster Yang Jiancai. "Thirteen sandstorms hit the city last year, eight more than in 2005, and the precipitation level was 46 percent lower than in previous years. Also, the average annual temperature was 2 degrees Celsius higher than in previous years. All this and less cold air this winter have worsened air pollution," Yang said.

The number of vehicles in Lanzhou reached 232,000 last year, 26 per cent more than in 2005, increasing the volume of emissions. Added to that were widespread and large-scale demolitions in the urban area, Lu said.

The local government started air pollution control projects way back in the 1980s. And in 2005, it implemented a pollution control plan, Project 123, to change the fuel used in buses, taxis and boilers.

"We plan to make the buses and taxis shift from petrol or diesel and boilers from coal to natural gas, cleaner fuel, in one to three years, but the shortage of natural gas slowed down the plan," Lu said.

Statistics show that the city needs about 2.2 million cubic meters of gas a day, but the average supply only amounts to 1.8 million cubic meters.

To effectively and better control air pollution, the city took some serious and urgent steps at the end last year, Executive Vice-Mayor Wu Jide said. "They include plans to build a concentrated heating system for urban residential and commercial areas, building more gas stations, research on and promotion of clean coal technology and planting more trees to improve the environment," Wu was quoted as having told Gansu Daily.

73. Shenzhen To Be Motorbike-Free

A new compensation plan is to be drawn up for motorcyclists as new efforts get underway to clamp down on the two-wheeled transport in Shenzhen. Police have vowed "zero tolerance" against motorcyclists within the special economic zone (SEZ) this year to make the SEZ motorbike-free.

"Xili area in Nanshan District to the north of North Ring Road is now the only section that motorcycles can travel within the SEZ," said Tang Yan, vice director of motorcycle-banning office under the Shenzhen Municipal Public Security Bureau.

Tang explained the reason the SEZ is not totally motor-free is that legal motorcycle owners should be entitled to use their motorcycles within the SEZ according to the Administration Permission Law of the People's Republic of China. "We will totally ban motorcycle traveling within the SEZ after the compensation plan for retrieved motorcycles is implemented," she said.

Tang said an estimated 10,000 Shenzhen-registered motorcycles bought after 1993 will be covered by the compensation plan.

"We will consider the purchase price of the motorcycles and how long they have been used to decide the compensation," Tang said. But the timetable for the compensation plan is still unknown.

Motorcycle-free areas outside the SEZ will also be further expanded. The police said they would take turns to ban motors after adequate public transportation has been introduced.

Motorcycles are blamed for disturbing normal traffic and facilitating motorcyclist robberies in Shenzhen. Motorcycles registered in other cities have been forbidden from the city since 1995, and those registered in Shenzhen have only been allowed to use certain roads since 2003. Electrically operated bikes are also banned in Shenzhen.

The police launched a three-month clampdown from September to December in 2006. Almost 130,000 illegal motors were seized in the campaign and 30,876 worn-out motors were destroyed.

The police reported a decrease in traffic accidents involving motorbikes and a 30 percent fall in the number of people injured compared with the same period last year.

However, 61 people were still killed in traffic accidents involving motorbikes in Shenzhen, said Ye Guanxiong, vice director of the Shenzhen Municipal Public Security Bureau Headquarters.

74. Chinese Report Urges New Focus on Sustainable Development

Experts from the Chinese Academy of Sciences have urged the government to establish new departments to boost environmentally-sustainable development as soon as possible, China News Service reports. The Report on China's Modernization 2007 said new ministries for the environment, energy resources and regional development should be set up to boost construction of a more environmentally-friendly country.

The advice is just one of ten proposals in the report for boosting ecologically-sustainable development in China by 2050. It was compiled by the China Center for Modernization Research.

The experts who wrote the report said the government should shoulder most of the responsibility for protecting the environment because it concerns the whole of society.

The report proposed the new environment ministry be tasked with overseeing the climate, air and water quality, forestry, ecological protection and industrial pollution. It should also be responsible for creating a healthy living environment for everyone.

Under the report, the new ministry of energy resources would be responsible for balancing the need for national energy security with ecological protection. The new regional development administration would be responsible for ensuring all development is carried out in an environmentally-friendly manner in China's regions.

Experts previously advised the government to set up a ministry for energy resources in 2005 and an administration for regional development in 2004, but the proposals did not mention the environment.

The other proposals in the 2007 report include mapping ecological modernization in China, curbing new projects that create pollution, and continuing the work to reduce pollution and upgrade the technology in traditional industries. Forests should be afforded better protection and the construction work in urban and rural areas should be more environmentally-friendly. The government should develop sustainable industries and recycling, establish an environmental risk rating system and encourage more projects to protect the environment. Finally, it should create national strategies to ensure energy resources security and the safety of the environment.

75. China Preparing National Plan for Climate Change

China is preparing its first plan to battle climate change, a senior policy adviser said, stressing rising alarm about global warming in a nation where economic growth has gone untethered. Zou Ji, a climate policy expert at the People's University of China in Beijing, told the press that the national program will probably set broad goals for emissions and coping with changing weather patterns.

It is likely to be released this year after at least two years of preparation, he said.

The plan showed that China was joining deepening global alarm that greenhouse gases from factories, power plants and vehicles are lifting average temperatures and will seriously, perhaps calamitously, alter the world's climate, said Zou. "All this shows that the Chinese government is paying more and more attention to this issue," he said. "When it's approved and issued it will be China's first official, comprehensive document on climate change."

China is galloping to become possibly the world's third-biggest economy by 2008, overtaking Germany and lagging only Japan and the United States. In late January, the former chief of energy research in China's powerful National Development and Reform Commission, Zhou Dadi, warned in a speech that pollution and climate change have become a "major constraint" on national economic development.

Zou and other experts have spelled out other worries in a series of recent assessments, warning that global warming may trip up China's sprint for middle-class prosperity. Increasingly frequent droughts and floods will threaten crops, Zou said. Hotter weather could speed the spread of deadly infectious diseases. Rising sea levels will slam rising waves against China's densely populated coast, driving sea water high upstream in shrinking rivers, ruining surrounding farmland.

Floods, droughts, hurricanes and other climate disasters now sap at least 2 percent away from China's potential GDP every year, and the absolute value of that damage is likely to grow with deepening climate change, Zou said. China will likely also have to spend huge sums raising protective walls along its vulnerable coast, Zou said. "I liken it to building a new Great Wall," he said.

76. China Establishes Inter-Agency Think Tank To Brace For Climate Change

China has set up a think tank on climate change adding to its efforts to brace for potential extreme weather, according to the China Meteorological Administration. Qin Dahe, director of the administration, said the think tank is designed to offer advice and devise strategies and regulations to tackle climate change. The think tank is to be headed by Sun Honglie from Chinese Academy of Sciences. Qin said China is following other countries including the United States, the United Kingdom, and Canada which have set up similar think tanks and have put climate change on their lists of national security threats.

The 12 members of the think tank are from 11 government agencies and research institutes including the State Environmental Protection Administration, the National Development and Reform Committee, and the Chinese Academy of Social Sciences.

Qin said the inter-agency committee will help the nation reduce the death toll and property loss from extreme weather caused by climate change. Extreme weather in China, including typhoons, floods and droughts claimed 2,704 lives and inflicted economic losses of 212 billion Yuan last year.

Dong Wenjie, director of the administration's climate center, earlier predicted extreme weather in 2007 could be worse than normal. More frequent typhoons, floods, storms, droughts and heat waves are possible, he said.

77. China to Establish GHG Emissions Exchange With U.N. in Bid to Spur Clean Development

On February 6th, China announced plans to establish the country's first exchange for greenhouse gas emissions credits as part of a joint effort with the United Nations Development Program to promote "clean development." UNDP and the Chinese Ministry of Science and Technology (MOST) will spend \$1.7 million over three years to establish the Beijing-based exchange with branch offices in a dozen of the country's less developed western provinces, authorities from both agencies said.

A pilot version of the exchange is expected to open this summer. Branch offices in the 12 selected provinces will function as brokerages with foreign investors.

The formal name of the initiative is "MDG Carbon: Carbon Finance for Achieving Millennium Development Goals."

The exchange is intended to enable projects that serve several goals: to reduce greenhouse gas emissions; to provide credits that investors can use to meet emission-reduction targets in other countries; to transfer clean technology to remote parts of China; and to provide income for people in those areas.

China is the host for more than one-third of projects worldwide under the Kyoto Protocol's Clean Development Mechanism, according to UNDP.

The climate change treaty's CDM provisions allow projects that reduce greenhouse gas emissions in developing countries to earn tradable credits that can be applied toward meeting emission-reduction targets in developed countries. Developing countries are not required to reduce emissions under the treaty.

China is the leading source of greenhouse gas emissions after the United States.

Liu Yanhua, vice minister of MOST, said the exchange and other projects would help China achieve its ambitious goal of reducing energy consumption by 20 percent per unit of gross domestic product by 2010. The program "presents an innovative market-based approach to attract large amounts of foreign investment and establish public-private partnerships in developing sustainable energy solutions," Liu said.

78. Taiwan EPA Unveils Plans for Vehicle Emissions, Fuel Standards

More aggressive air quality improvement measures and tighter restrictions on vehicle emissions will be implemented this year, said the Environmental Protection Administration (EPA) in their year-end report. In response to the escalating problem of ozone pollution, "emission restriction standards and regulatory controls for city and county air quality control zones will be carried out aggressively in the future," said Young Chea-yuan, director general of EPA's department of air quality protection and noise control.

"Air quality improvement projects in Kaohsiung, Pingtung, Yunlin, Chiayi, and Tainan counties [the most seriously polluted air quality zones] are a major priority," said Young.

The reduction of VOCs (volatile organic compounds), which are serious risks to human health, is also a priority, as well as the regulation of and reduction of emissions of toxic chemical substances, according to Young.

Also, the EPA plans to introduce more stringent standards for automobile gasoline and diesel this year, which will greatly reduce the allowable level of sulfur in these fuels. "These new standards are aimed at getting Taiwan's regulations in line with the international trend of lowering sulfur levels in fuel products," said Young.

As part of their Clean Vehicle Development Plan, the EPA will encourage motorbike manufacturers, through guidance and incentives, to continue research and development on the production of low-polluting fuel injection engine motorbikes and encourage citizens to use such vehicles.

To this end, the EPA will aim to increase the inspection rate, to phase out older motorcycles and diesel vehicles and replace these with new vehicles, and to promote low emission injection engine motorcycles.

79. Asia Adds Refining Capacity, But Not Enough

Oil refining limitations that have sent refined product prices soaring at a time of rising crude oil inventories look set to continue plaguing Asia in 2007. While some Asian refiners are adding more secondary processing units to produce less-polluting, higher-specification gasoline, diesel and jet fuel, less new capacity of this type will be brought on line than happened in 2006, a situation that may keep supply, and prices, at a premium.

"Some new capacity is coming on next year but it won't be as much as in 2006," said Victor Shum, a Singapore-based analyst at US energy consultancy Purvin & Gertz Inc. "My expectation is that utilization of secondary units will remain high, although it's also true that the current lack of global conversion capacity is beginning to subside."

Asia's shortage of locally-produced crude oil and price spikes that took crude futures to above US\$78 a barrel this year have resulted in soaring import bills and higher oil product prices, putting economies across the region under pressure.

Given supply tightness for easy-to-refine, low-sulfur crude, the industry in Asia has been pushing ahead with efforts to build new processing facilities to cope with heavier, sour grades.

China, Asia's runaway demand outlet, will lead the region next year in building facilities aimed at ramping up middle distillate output.

About 175,000 barrels a day of new hydrocracking capacity is earmarked to be in operation in 2007, nearly all of it in China. China Petroleum & Chemical Corp. (SNP), Asia's largest refiner by capacity, will invest CNY30 billion in the coming years to enable its plants to produce gasoline and diesel with lower sulfur content, according to the Xinhua News Agency.

Among the key projects elsewhere to look out for is a fluid catalytic cracker to be commissioned by India's privately held Essar Oil in Vadinar, which will be able to process more than 70,000 b/d.

The slower pace of capacity building partly reflects the long lead time between an investment decision and putting a facility into commercial operation; oil prices were still below US\$40 at the start of 2004.

"Although Asian conversion capacity additions are expected to be limited in 2007, the next big wave of projects should come on stream in 2008," Shum said.

While construction of new clean-fuel production units will lag demand in 2007, Asia will add more than million b/d of new crude-distillation capacity over the next two years, compared with less than 700,000 b/d this year. This masks a growing disconnect between the crude and products markets: even though crude supplies are ample globally - US commercial stockpiles are now nearly 14% above their five-year average - benchmark prices will stay firm as long as clean products are in demand.

Without adequate secondary refining facilities, refiners are cranking out more heavy, lower-value residual products with every barrel of crude they process.

Reflecting this trend, refining margins for gasoline and middle distillates will hold strong next year, shoring up profits for refiners despite a weak market for fuel oil, a Singapore-based oil trader reportedly said.

As for Asia's oil demand outlook, much will depend on factors like global and regional economic growth rates, but there are other wild cards. The International Energy Agency, a watchdog for the Organization of Economic Cooperation and Development, has trimmed its forecasts for the region. Asia's oil demand in 2007 will average 4.87 million b/d, a rise of 570,000 b/d on year, lifted by a predicted 5.4% growth in Chinese demand, the Paris-based agency said in its monthly Oil Market Report released Dec. 13.

Demand should stay firm despite high oil prices as long as "there's no economic slowdown, or diseases spreading," Shum said, in a reference to the SARS epidemic that slashed transport fuel use in 2003 and fears about avian flu.

80. Rickshaw's a Serious Threat to Karachi's Environment

The shabby, worn-out and undisciplined road-based public transport in Karachi is one of the main culprits increasing air and noise pollution. It is generally felt that without changing the prevailing public transport culture, complete revival of Karachi Circular Railway (KCR) as well as induction of CNG buses, this city could hardly get rid of its alarming pollution.

The level of both air and noise pollution in the city is crossing safe limits and turning into a serious threat not only for its socio-economic activities, but also for the health of its citizens.

Besides other factors like smoke-emitting vehicles, factory fumes and burning of garbage in the open, it is the two-stroke rickshaw that is widely blamed for the alarming levels of air and noise pollution in the metropolis. The Pakistan Medical Association (PMA) Karachi Chapter's General-Secretary, Dr Qaiser Sajjad, said that in a survey of PMA on air pollution, it emerged that noise level of traditional old two-stroke rickshaw was from 95-110db, while noise level of an airplane engine was from 120-140-db. He said that a normally human ear could tolerate noise up to 85-db and all noises above this level were harmful for human health. The unbearable noise pollution in Karachi is causing hearing problems for the citizens.

Excessive noise level is also harmful for the human nervous system, leading to headaches, mood disorders, high blood pressure, depression, anger and ultimately serious coronary and heart diseases.

Both city planning and healthcare experts have been demanding for a long time that to bring down excessive air and noise pollution levels, two-stroke rickshaws should be turned into four-stroke ones, and smoke-emitting buses and minibuses be changed with wide-bodied CNG buses, and the Karachi Circular Railway system should also be revived and expanded.

A local train could cater to the needs of several thousands of commuters and a good and cost-effective replacement of dozens of buses. Only an efficient rail-based system like KCR could lessen dependence on the road-based transport. This will not only help unclog traffic-jam stricken roads, but also improve environment due to lesser noise and air pollution.

Despite orders of the Supreme Court to take action against vehicles causing pollution, concrete, sustained and visible actions were yet to be taken by the government. The smoke emitted by these vehicles is highly poisonous, spreading respiratory infections, asthma, tuberculosis, lung cancer and other serious ailments amongst Karachiites.

81. Pollution Plunges Lahore into Smoggy Twilight Zone

Much like the south or north poles, the western Pakistani city of Lahore remains in what looks like perpetual twilight through much of its winter. But the phenomena, which means street lights remain surreally switched on through much of the morning and drivers along motorways use headlamps or fog lights at all times, is caused in this case not by the position of the sun but by pollution.

Worsening air quality, mainly as a result of vehicular and industrial emissions, means hazy smog hangs over the city and is most visible in winter, when the lack of rain worsens the pollution and mist holds pollutants in suspension.

In June 2006, a report entitled, 'Strategic Country Environmental Assessment: Rising to the Challenge', released by the Pakistan Federal Ministry of Environment, found that urban air pollution in Pakistan annually caused around 22,700 deaths, including those of 700 children. It was noted that fine particulates and lead suspended in the air caused some of the most acute health problems. The major source of fine particulate pollution was vehicles, followed by fossil fuel combustion in factories and emissions from power plants.

The levels of air pollution in Pakistan's two largest cities, Karachi (in the south) and Lahore, were estimated to be 20 times higher than guidelines set by the World Health Organization (WHO), and still rising. A study carried out in 2003-04 by the public-sector Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) under the UNDP/ENERCON Fuel Efficiency in Road Transport Sector Program, found an extremely high concentration of pollutants in most cities.

The rapid increase in vehicles on the roads is a major problem contributing to air pollution. The number of vehicles has surged from 0.8 million 20 years ago to over 4 million in 2005, showing an overall increase of 400 percent. Car leasing schemes by banks, the availability of motorcycles on installments and an increase in purchase power are all factors in this.

The pollution is having an extremely negative impact on health, most particularly that of children. In 2002, the Karachi-based National Institute of Child Health announced the results of a study in which it had followed the development of 3,500 children, all born healthy, from birth to their teens. Within a decade, 265 of the sample group children had developed asthma severe enough to affect their day-to-day lives. Those who spent the longest periods of time playing outdoors were the worst hit by the life-threatening disease.

The situation has not improved since then. A survey in Lahore carried out by four major teaching hospitals in 2004 found that vehicular pollution was responsible for at least 70 percent of ear, nose and throat diseases.

"The impact of pollution on health can be seen every day. More and more people are coming in with respiratory ailments, and many more children than before have breathing disorders or asthma," said Dr Anees Sultan, a Lahore-based family physician.

While courts in the country, during the past two years, have delivered several rulings seeking an improvement in air quality, there has been only limited success in implementing steps aimed at taking smoke-emitting vehicles off the roads.

The Punjab Environmental Tribunal, in April 2006, hearing a petition filed by an NGO Eco-Watch, noted that the Punjab Transport Department had issued 40,000 rickshaw (three-wheeler

public transport vehicles) permits on 30 December 2004, a day before a Punjab government ban on such permits went into force. The provincial transport secretary told the tribunal an inquiry had been ordered into the matter. Smoke-emitting rickshaws were to be taken off roads under a Punjab government initiative to improve air quality. Early this year, rickshaws were banned from plying on the central Mall Road in Lahore. A scheme to replace rickshaws with 'green' versions of the vehicle, run on Compressed Natural Gas (CNG) is under way.

82. Air Pollution Has Hanoi Gasping

The majority of the public believe air pollution in the capital is posing a health risk, according to a recent survey by the Viet Nam Consultancy for the Environment and Development Company. Of those surveyed, 56 per cent said air pollution was quite serious, while 10 per cent said air pollution was a serious problem. A further 32 per cent said air pollution in Hanoi was not serious, while 2 per cent said the air in the capital was pure.

When asked whom they thought was most at risk from air pollution, 81 per cent said children were the most vulnerable, followed by pregnant women (73 per cent), old people and those with lung-disease (67 per cent), and people who work outdoors in the city (62 per cent).

Exhaust fumes from cars and motorbikes were considered the main causes of air pollution, followed by waste water from the gutters and dust and chemicals from building sites. Industrial smoke and smoke from domestic fireplaces were seen as minor sources of pollution.

Of those who ride a motorbike, 64 per cent said regular servicing would cut harmful engine emissions, while 48 per cent said exhaust filters should be made mandatory. A further 33 per cent said greater use should be made of public transport.

Widespread treatment of waste water and better maintenance of the sewerage network were seen as the best ways of reducing air pollution by 76 per cent of those polled. A further 64 per cent felt public-awareness programs about pollution should be implemented, while 64 per cent of those surveyed said factories should be moved out of the city.

In a bid to reduce air pollution in Hanoi, the government launched the Swiss-Vietnamese Clean Air Program (SVCAP) last August. In the first phase of the joint initiative by the Ministry of Natural Resources and Environment and the Swiss government, represented by the Swiss Agency for Development of Co-operation, a number of pilot projects have been implemented to reduce air pollution, such as the use of cleaner fuels and low-emission engines in motorbikes and trucks.

83. Smoke Cover Threatens the "Red Hero" of Mongolia

Ulaanbaatar means the "red hero" but if nothing effective is done soon to reduce the air pollution that envelops the city in a toxic grip the Mongolian capital may soon end up as a "smoky hero". The scale of the problem has been once again emphasized by the Mongolian Association of Daily Newspapers which last week appealed to international organizations working for environmental protection to take serious note of the pollution, which has reached disaster levels, and to suggest and implement corrective measures. According to the Onoodor, Ulaanbaatar has around 90,000 vehicles and 120,000 households in the ger district use coal-fired stoves.

Last December, the time of the year when the air pollution level reaches its highest, carbon monoxide in the air was six times higher than the allowable maximum, and toxic metallic elements such as dioxin, cadmium and mercury were all present in a similarly higher than normal range.

In the last decade, the population of the capital city has increased from 700,000 to over a million, following mass migration from the countryside. Most of the newcomers, herders who had to leave the countryside in search of a living after a series of disastrous winters had killed millions of livestock, have settled in the suburban ger districts. Over 90 percent of the air pollution in the city is estimated to be caused by smoke from the household coal-fired stoves they light. Heating needs naturally go up during the winter and an average household burns five metric tons of coal every year.

The remaining 10 percent of the air pollution is contributed by the three thermal power plants, all located in the west of Ulaanbaatar, which caters to the needs of the metropolitan area, and in the process consume about 5 million tons of coal per year.

The mostly poor ger district households have no central heating system, and usually burn coal mined from the nearby satellite district towns of Nalaikh and Baganuur to survive the harsh and long Mongolian winter, when temperatures reach -40 degrees Celsius in January. But there are many who cannot afford the coal and so use whatever they can lay their hands on – automobile tires and other rubber materials, old shoes, sacks — to light a fire to stop themselves from freezing and to cook. At the Khangai market for wood and other fuel one truckload or five tons of coal from the Nalaikh mines cost around Tg120, 000, and the same from Baganuur around Tg150, 000.

The Government has implemented a number of projects with the help of international organizations to reduce the pollution, but its efforts to introduce improved household stoves have failed to achieve results. These have more efficient combustion, low emission of gas, and low consumption of fuel but the main reason these have not become popular is that the special fuel they use is not as easily available as coal.

Large-scale import of used cars from Japan and South Korea has also contributed a lot to the air pollution. The Government has raised the duties on the import of cars older than 10 years, and also of those that have a larger engine capacity. On the other hand, in an effort to reduce air pollution, it has totally exempted hybrid vehicles, and any vehicle that uses liquefied petroleum gas (LPG) from paying any excise tax, as they are ecologically friendly.

The incidence of respiratory infections of various forms among the population of the capital city is on the increase and over 80 percent of the children less than 5 years here have been found to be suffering from asthma, bronchitis, whooping cough, or some other pollution-induced problem.

O.Bum-Yalagch, an activist of the Green Party, has charged the city administration with doing nothing for the public health, and has said, "The problem of air pollution has now assumed life threatening proportions for the residents of Ulaanbaatar." A survey which weighed carbonic pieces deposited on a mouth filter mask, found that on an average a resident of Ulaanbaatar ingests 25 kilograms of coal, and 120 kilograms of various poisonous elements in a year.

The four 24-hour meteorological stations in the city constantly measure the sulfur dioxin and the nitrogen dioxin in the air where they are located. They work respectively in an industrialized

area of Khan-Uul District, in the Bayankhoshuu area of Songinokharkhan District, in the western four-roads intersection of Bayangol District, and in the 13th microdistrict of Bayanzurkh District.

It is not uncommon for international flights to or from the Chinggis Khaan International Airport at the Buyant Ukhua to be canceled because of visibility restraints imposed by air pollution. The problem continues to be aggravated as the ger districts in the nearby Nisekh and Yarmag areas have been increasing in size in the last few years. At such times, the smoky curtain appears something tangible but for the citizens of Ulaanbaatar, it is much more deadly in its constant invisibility.

MIDDLE EAST

84. 3,600 Dead In Tehran Due To Air Pollution, In One Month

Air pollution has allegedly been the cause of 3,600 deaths in a month, in one of the world's most polluted cities, Tehran, which has led city officials to label it as a 'collective suicide.' Air pollution is serious in Tehran, due to the availability of inexpensive fuel that has led to widespread and indiscriminate use of vehicles, defying universal emission norms. The result of flouting emission standards has led to smog, spread by the combination of smoke and fog.

Smog is capable of causing heart attacks and respiratory problems. In Tehran, 80% of heart attacks are due to air pollution, which has also caused 10,000 deaths in 2006.

Mohammad Hadi Heydarzadeh, director of Tehran's clean air committee, said, 'It is a very serious and lethal crisis, a collective suicide. A real revolution is needed to resolve this problem.'

The most recent data available has shown the increase in deaths due to pollution. It is worse during winter months when the smog does not clear for many days.

85. Dubai Municipality to Reduce Air Pollution from Smoky Cars

Random inspections of vehicles to check emission levels are on the cards as Dubai Municipality is putting in place new equipment to reduce air pollution. The Municipality's Environment Department is on the lookout for various pollution control technologies to be implemented in different areas.

"We are importing state-of-the-art technology to check vehicle emissions and find the vehicles that cross the specified emission limits irrespective of the different fuels used to run them," said Redha Hassan Salman, Head of the Environment Protection and Safety Section at the Municipality.

He said although the emission level of vehicles was checked at the time of their annual registration municipality inspectors will conduct random checks because many vehicles are not properly maintained.

"We have evaluated and studied a number of advanced pollution control technologies prevalent in different developed countries and will use the best of them to minimize pollution levels," he said.

Meanwhile, the tests on air quality in Dubai conducted in November showed air quality is good in general and is at the desired level.

86. Abu Dhabi Progresses toward Introduction of Green Diesel as Fuel

The Abu Dhabi Government is continuing its progress toward introducing Green Diesel in all vehicles and industries, announced the technical committee which was formed by the Abu Dhabi Executive Council. 100% of all Government vehicle fleets are expected to operate on Ultra Low Level Diesel.

It will achieve this goal by slowly phasing out the use of High Sulfur Diesel, which contains sulfur content greater than 500 parts per million (ppm).

The action plan was discussed during the second meeting of the technical committee for Abu Dhabi Emirate and the rest of the UAE.

By the year 2010, the action plan has called for the replacement of the currently used Diesel with Diesel that has Sulfur content of 50 ppm.

By the year 2012, Diesel that has Sulfur content of 10 ppm will be introduced. The general public will have to have their cars transformed at dedicated workshops to be able to use Green diesel.

The Committee consists of members from the Environment Agency - Abu Dhabi (EAD), Federal Environment Agency (FEA), Takreer, ADNOC Distribution, Department of Transportation, General Headquarters of Abu Dhabi Police and the Emirates Standardization and Meteorological Authority.

In 2002, Takreer already took the initiative to reduce Gas Oil to 0.5% from 1%. By the beginning of 2007, it had further reduced it to 500 parts per million.

According to EAD, significant improvements in Abu Dhabi's air quality can be expected, particularly in the urban areas, when there is a move towards using cleaner fuels. The most polluting vehicles have been identified as buses and taxis, as they are the most in use and roam the roads for the majority of the day.

Green Diesel contains less than 15 parts per million [ppm] of sulfur, while conventional diesel can contain up to 5000ppm of sulfur! Previously, diesel vehicles were the single biggest source of particulate emissions and the second biggest source of NOx after petrol.

87. Sasref Intends to Produce Ultra Low Sulfur Diesel

Saudi Aramco Shell Refinery Co. (Sasref) announced it has signed a front-end engineering development agreement with ABB Lummus for a large scale ultra low sulfur diesel (ULSD) project. Under the deal, Sasref would by 2009 become the first Saudi refinery to produce 10-ppm sulfur ULSD, the company announced on January 29th.

"The investment in this project is to reduce the sulfur content of the diesel fuel manufactured in Sasref by installing an ultra-low sulfur gas oil unit and revamping the existing gas oil desulfurizer to meet the new diesel specification," Sasref said.

"Upon the project completion, Sasref's capacity of ultra low sulfur diesel will be 11,600 tons per day. This will make Sasref the first producer of ULSD of 10 ppm in the [Saudi] kingdom. And this investment will protect Sasref's long term margins in the world refining markets," the company said.

GENERAL

88. Permanent Lung Damage for Those Living Within 500 Yards of A Highway

In the largest and longest study of its kind, USC researchers have found that children living near busy highways have significant impairments in the development of their lungs that can lead to respiratory problems for the rest of their lives. The 13-year study of more than 3,600 children in 12 Central and Southern California communities found that the damage from living within 500 yards of a freeway is about the same as that from living in communities with the highest pollution levels, the team reported Thursday in the online version of the medical journal *Lancet*.

"If you live in a high-pollution area and live near a busy road, you get a doubling" of the damage, said lead author W. James Gauderman, an epidemiologist at the Keck School of Medicine of USC. "Someone suffering a pollution-related deficit in lung function as a child will probably have less than healthy lungs all of his or her life," he said.

The greatest damage appears to be in the small airways of the lung and is normally associated with the fine particulate matter emitted by automobiles.

The research is part of an ongoing study of the effects of air pollution on children's respiratory health. Previous findings have detailed how smog can stunt lung growth and how living close to freeways can increase the risk of children being diagnosed with asthma.

This latest study of freeway proximity and lung capacity was funded by the California Air Resources Board; the National Institute of Environmental Health Sciences; the Environmental Protection Agency; the National Heart, Lung and Blood Institute; and the Hastings Foundation.

Gauderman and his colleagues recruited groups of fourth-grade students, average age 10, in 1993 and 1996. Their schools were scattered from Atascadero in San Luis Obispo County to Alpine in San Diego County. The team collected extensive information about each child's home, socioeconomic status and other facts that might impinge on health.

Once each year, the team visited the schools and measured the children's lungs, assessing how much air could be expelled in one breath and how quickly it could be expelled.

These cohorts of children "are truly an important resource because the study has been going on so long," said epidemiologist Jonathan Samet of Johns Hopkins University's Bloomberg School of Public Health, who also did not take part in the study. The size and scope of the study make it very difficult to replicate, he said.

Results from the study reported in 2004 indicated that children in the communities with the highest average levels of pollution suffered the greatest long-term impairment of lung function.

In the new study, Gauderman and his colleagues found that by their 18th birthday, children who lived within 500 yards of a freeway had a 3% deficit in the amount of air they could exhale and a 7% deficit in the rate at which it could be exhaled compared with children who lived at least 1,500 yards, or nearly a mile, from a freeway. The effect was independent of the overall pollution in their community.

Gauderman had no estimate for the percentage of people in Southern California living within 500 yards of a freeway, but he noted that in a typical city such as Long Beach, it is about 17%.

The most severe impairment was observed in children living near freeways in the communities with the highest average pollution — Upland, Mira Loma, Riverside and Long Beach. Those children had an average 9% deficit in the amount of air they could expel from the lungs.

"Even if you are in a relatively low regional pollution area, living near a road produces [lung problems]," Gauderman said.

About one-third of the children moved during the course of the study but stayed in the same community. Lung impairment was smaller among those who moved farther from the freeways.

The finding is important "because it shows that within communities, some children are at higher risk than others," Dr. Thomas Sandstrom and Dr. Bert Brunekreef wrote in an editorial accompanying the paper. "Thus, environmental equity is an issue of local rather than regional dimensions."

The results were also independent of the children's initial health and whether they were smokers. "This suggests that all children, not just susceptible subgroups, are potentially affected by traffic exposure," Gauderman said.

89. Swiss Find Living Near Busy Street Increases Breathing Problems

The closer people live to a main road, the more likely they are to suffer from respiratory symptoms such as breathlessness and wheezing, a new study from Switzerland shows. "These findings from a general population provide strong confirmation that living near busy streets leads to adverse respiratory health effects," Dr. Lucy Bayer-Oglesby, of the University of Basel, and colleagues write in the *American Journal of Epidemiology*³.

While outdoor air pollution -- especially tiny particles that can be breathed deep into the lungs-- is known to be hazardous to people's health, to date no researchers have looked at how proximity to main roads affects respiratory symptoms in a general population, Bayer-Oglesby and her team note.

To investigate, they looked at data from a two-part study of air pollution and lung disease. It involved 9,651 randomly selected men and women aged 18 to 60 who enrolled in the study in 1991, 8,047 of whom re-enrolled for the second phase of the study in 2002.

People's risk of having attacks of breathlessness increased by 13% for every 500-meter segments of main street located within 200 meters of their home. The risk of such attacks

³ *American Journal of Epidemiology*, December 15, 2006.

among people who had never smoked fell by 12% for each additional 100 meters between their homes and a main street.

Individuals whose homes were within 20 meters of a busy road were 15% more likely to regularly have phlegm in their breathing passages, while they were 34% more likely to have wheezing with breathing problems.

The effects of traffic on respiratory health were stronger for men and for people who had never smoked.

The effects of living near main streets were weaker in 2002 than in 1991, which may have been due to stricter requirements on auto emissions, the researchers note.

"Living close to main streets or in a dense street network increases the risks for certain respiratory symptoms in adults, particularly for asthma-related symptoms such as attacks of breathlessness and wheezing and for bronchitic symptoms such as regular cough and phlegm," they conclude.

90. Women At Greater Risk From Air Pollution

Women living in areas with higher levels of air pollution have a greater risk of developing cardiovascular disease and subsequently dying from cardiovascular causes, according to a University of Washington study appearing in the February 1st issue of *The New England Journal of Medicine*. The study is one of the largest of its kind, involving more than 65,000 Women's Health Initiative Observational Study participants, age 50 to 79, living in 36 cities across the United States.

UW researchers studied women who did not initially have cardiovascular disease, following them for up to nine years to see who went on to have a heart attack, stroke, or coronary bypass surgery, or died from cardiovascular causes. They linked this health information with the average outdoor air pollution levels near each woman's home, and found that higher pollution levels posed a significant hazard – much higher than previously thought – for development of cardiovascular disease.

The researchers studied levels of fine particulate matter, tiny airborne particles of soot or dust less than 2.5 microns in diameter which can come from a variety of sources, like vehicle exhaust, coal-fired power plants, industrial sources, and wood-burning fireplaces.

Fine particulate matter is measured in micrograms (or millionths of a gram) per cubic meter; cities in the study had average levels of fine particulate matter ranging from about 4 to nearly 20 micrograms per cubic meter. The researchers found that each 10-unit increase in fine particulate matter level was linked to a 76 percent increase in the risk of death from cardiovascular disease, after taking into account known risk factors such as blood pressure, cholesterol, and smoking. Higher long-term average levels of fine particulate matter also led to a higher overall risk of cardiovascular disease events, including stroke and heart attack.

They also found that local differences in particulate matter levels within a city, as well as exposure differences between cities, translate to a higher or lower risk of cardiovascular disease and related death.

Previous studies have found apparent links between airborne particulate matter and cardiovascular disease, but this study was the first to look specifically at new cases of cardiovascular disease in previously healthy subjects and local air pollution levels within metropolitan areas. Researchers used data from the multi-site Women's Health Initiative Observational Study, which is funded by the National Heart Lung and Blood Institute of the National Institutes of Health (NIH), and coordinated through a center based at the Fred Hutchinson Cancer Research Center in Seattle. The EPA and the National Institute of Environmental Health Sciences provided funding for the study of the effects of air pollution.

Scientists don't understand exactly how fine particulate matter may be leading to cardiovascular disease, but some believe that the soot particles are accelerating atherosclerosis, or hardening of the arteries, which is the major precursor of heart disease.

An editorial from researchers at the Harvard School of Public Health and Brigham and Women's Hospital accompanied the study in the February 1st issue of the journal. In that editorial, the authors suggest public health interventions to address this problem, as well as a tightening of the EPA standards regulating fine particulate matter pollution.

91. U.N. Panel Report Finds Greater Consensus On Causes, Outcomes of Global Warming

On February 2nd, a United Nations scientific panel issued a report warning that temperatures and sea levels will continue to rise even if greenhouse gas emissions are kept at current levels. The new report from the Intergovernmental Panel on Climate Change offers the strongest evidence to date that human activity, in particular the emission of carbon dioxide linked to the burning of fossil fuels, is responsible for warming of the Earth's atmosphere.

"Anthropogenic warming and sea level rise would continue for centuries due to the timescales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized," according to the report.

The report, *Climate Change 2007: The Physical Science Basis*, is intended to serve as a "summary for policymakers" and constitutes the first of four "volumes" of the IPCC's fourth assessment of climate change, which is slated for full publication later this year. Drawing on the work of more than 1,200 scientists over the past six years, the summary report was presented in Paris after undergoing four days of final scrutiny by more than 300 delegates representing 113 countries.

The final version approved by participating governments recognizes that an "unequivocal" warming of the climate system is taking place and suggests that it is "very likely" being caused by human activity.

Susan Solomon, a climate expert at the U.S. National Oceanic and Atmospheric Administration who co-chaired the scientific working group responsible for the report, said the phrase "very likely" means that scientists are 90 percent certain that human activity is a major contributor to climate change. This is a step up from the IPCC's last report, issued in 2001, which found it only "likely" that human activity was responsible for global warming, representing a 66 percent probability.

The 21-page report sees little room for doubt that pollution is heating up the planet and finds that the 1995-2006 period was the hottest decade on record.

The report finds that global temperatures have risen at least 0.75 degree Celsius since 1850 and warns that the global average will continue to rise a minimum of 0.2 C per decade over the coming 20 years if no additional action is taken to reduce greenhouse gas emissions.

The report also provides a series of estimates on likely global temperature and sea level increases over the coming century, based on climate change modeling using six separate economic development scenarios. Temperatures are expected to rise anywhere from 1.8 C to 4 C over the coming century, according to scientists' "best estimate," with a "likely range" of temperature increases running from 1.1 C to 6.4 C.

Higher temperatures can be expected to melt polar ice, leading sea levels to rise over the same period, according to the report. Estimates of sea level rise range from 18 centimeters to 59 centimeters, depending on the economic development scenario used. The report suggests that sea levels could rise by an additional 10 centimeters - 20 centimeters if the current melting of ice sheets in Greenland and Antarctica continues.

For the first time, the IPCC report finds that it is "more likely than not" that the growing trend toward strong hurricanes, cyclones, and other tropical storms is caused by global warming. The previous IPCC report said there was insufficient scientific evidence to link the unusual weather incidents to climate change.

The report projects that global warming will continue even if greenhouse gas emissions are frozen at 2000 levels, but that failure to reduce emissions will worsen the outcome. "Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century," according to the report.

The report sees climate changes affecting arctic temperatures and ice coverage, precipitation patterns around the world, ocean salinity, wind patterns, and the frequency and intensity of extreme weather such as droughts, heavy precipitation, heat waves, and tropical storms.

Solomon pointed out that long-term warming, over a thousand-year period, could lead to full melting of the Greenland ice sheet and a resulting sea level rise of up to 7 meters.

The Paris-based International Energy Agency, the energy arm of the 30-member Organization for Economic Cooperation and Development, on February 2nd welcomed the "important and timely messages" in the IPCC report, which it said should convince countries to take coordinated action to address rising carbon dioxide emissions.

IEA urged countries to break away from the current "business-as-usual scenario" under which emissions will continue growing through 2050, leading to corresponding rises in temperatures and worsening the risk of major climate change.

IEA said countries should immediately seek to improve energy efficiency while seeking to diversify energy supplies for the long-run.

"There is no single solution," IEA said, adding that the world energy mix "must combine greater energy efficiency improvements with more renewables, more nuclear energy, and many more

fossil fuels with carbon capture and storage, assuming that technological progress can make these solutions cost-effective and safe."

IEA reiterated calls for countries to boost research and development spending on public and private sector projects aimed at improving energy efficiency and reducing carbon emissions to 2000 levels by 2050.

The current IPCC report dealt only with science and did not discuss policies to mitigate or adapt to climate change. These issues will be discussed in other volumes of the IPCC's fourth assessment report, which are now being finalized. These will include the scientific panel's assessment of how global warming may affect the Earth, as well as possible methods of human adaptation to those changes.

Issued every five to six years, the report is meant as a comprehensive global assessment and is one of the most closely watched international reports on climate change. This year's version involves more than 2,500 researchers and has generated thousands of comments from outside experts, governments, and interest groups.

The process of assessing climate change effects through the IPCC report was established by the United Nations Environment Program and the World Meteorological Organization in 1988. The second IPCC assessment report was released in 1995. The third and most recent assessment, released in 2001, urged immediate action to avert dramatic climate change.

92. International Group Sets Plan To Curb Global Warming

More than 100 corporate heads, international organizations and experts set out a plan to cut greenhouse gas emissions, calling on governments to act urgently against global warming. "Failing to act now would lead to far higher economic and environmental costs and greater risk of irreversible impacts," the Global Roundtable on Climate Change warned in a statement, announcing their first major agreement since they began talks in 2004.

The group, which includes executives from a range of industries including air transport, energy, and technology, called on governments to set targets for greenhouse gases and carbon dioxide (CO₂) emissions.

The agreement urged governments to place a price on the carbon emissions released by power plants, factories and other sectors to discourage emissions. "Of course, addressing climate change involves risks and costs. But much greater is the risk of failing to act," said Alain Belda, chairman and CEO of the world's top aluminum producer Alcoa, who signed the pact.

The group includes General Electric, Ford Motor Co., Toyota Motor North America, investment bank Goldman Sachs, and Wal-Mart among its major corporations.

Given fast-rising emissions from developing nations, the group estimated that a "business-as-usual" path could put the planet at three times the carbon dioxide levels seen before 1900.

The largest carbon-emitting sector is power generation, responsible for more than 40 percent of global energy-related emissions. Industry accounts for more than 18 percent of emissions, transport contributes another 20 percent, and the residential and services sector roughly 13 percent.

The group estimates that technology to head off mounting carbon dioxide concentrations would cost about 1 percent of global gross domestic product. Costs would fall as technologies become more established, it predicted.

"If we delay too long in beginning the changeover to increasingly de-carbonized energy systems, the eventual costs will only rise and the impact of climate change will only become more severe," the group wrote in its agreement, warning that poorer nations would see the worst impact from climate change.

93. 46 Countries Join Call To Create New U.N. Environment Organization

On February 3rd, Forty-six countries joined a French initiative to launch multilateral talks on a proposal to reorganize the existing U.N. Environment Program and raise its status within the United Nations. The plans would see the Nairobi-based UNEP renamed the U.N. Environment Organization (UNEO) and give it enhanced budgetary and administrative clout, along the lines of the existing World Health Organization.

The proposal was the primary focus of the February 2-3 Paris Conference for Global Ecological Governance, which was hosted by French President Jacques Chirac.

Conference participants endorsed a final statement, called the Paris Call for Action that expressed strong concern over climate change and other environmental threats and supported Chirac's call for enhanced multilateral cooperation on these issues. Countries represented included most members of the European Union and a number of developing nations.

The countries agreed to form a "pioneering group" that will launch preliminary talks on the proposed UNEO this spring at a meeting in Morocco. French government officials said that the talks in Morocco will focus on two key objectives: to begin drafting a Universal Declaration of Environmental Rights and Duties, which could eventually be put to vote before the U.N. General Assembly; and to lay the groundwork for gradual transformation of UNEP into the UNEO.

The officials said they hoped the Morocco meeting would produce a roadmap for formal multilateral negotiations with a view to establishing the UNEO within four years.

The Paris Call for Action suggests that the proposed UNEO will be "modeled on the World Health Organization," serving as "a strong voice with global recognition" of environmental issues facing the planet.

The UNEO "will be the instrument used to assess environmental damage and understand how to repair that damage, an effective instrument to promote technologies and behaviors that respect ecosystems more effectively, [and] a way to support the implementation of environmental decisions all over the planet," according to the statement.

The United States, which sent a low-level observer delegation to the Paris meeting, has expressed opposition to the creation of a new U.N. environment organization, as have many of the world's other leading economic powers, including Brazil, China, India, and the Russian Federation, according to French officials.

Chirac downplayed this opposition, telling participants in the Paris Conference--which included more than 200 delegates and observers from 72 countries--they were "spearheading" a new global environmental movement, and expressing confidence that they would eventually "win over those who are still hesitant to join us."

Much of the discussion during the two-day conference centered on the various potential approaches for "strengthening global ecological governance."

Participants in a variety of workshops highlighted the need to harmonize and streamline control over more than 500 existing treaties and agreements on environmental issues, most of which are currently run by independent secretariats scattered across the planet.

Former French Prime Minister Alain Juppe, who chaired the February 3rd meeting, identified three distinct approaches brought forward by delegates.

- Some participants supported a "modest" and "gradual" bid to strengthen the UNEP, a voluntary program with an \$85 million annual budget that addresses a range of environmental issues, but has full authority over none, Juppe said.
- A second group called for a "maximalist" approach, supporting the establishment of a global environmental organization with an independent dispute settlement body that would eventually be expected to "counter-balance" the Geneva-based World Trade Organization.
- A third group favored the establishment of an "ambitious, yet feasible" UNEO, which could be given authority over all multilateral environment agreements, as well as a range of existing environmental programs, without the creation of an enforcement authority.

Juppe recognized that affording the UNEO new enforcement or sanction powers would have a range of economic, legal and political implications, but did not rule out the possibility that this model could one day be accepted by U.N. member states.

Chirac, for his part, told delegates he supported transformation of the Nairobi-based UNEP into a fully-funded U.N. organization. While Chirac hailed UNEP as an "outstanding" program, he reminded delegates that it "does not have adequate powers or institutional clout" for coordinating the wide range of environmental risks facing the planet. "Given the urgency, the time for half-measures has passed," Chirac said.

The meeting's final statement echoed Chirac's wording. Signatories said the Earth faces an "environmental crisis" linked to the unsustainable use of natural resources, and suggested that "the entire planet is at risk." In response to these risks, signatories said they would seek "a new kind of ...environmentally oriented growth ...that furthers sustainable development and poverty eradication."

The Paris Call for Action commits signatories to development and take up of new and more efficient technologies, organizational methods, and behaviors concerning energy, water, and natural resources and to incorporate environmental conservation costs into economic systems.

It adds that these efforts "should be distributed fairly among the richest and poorest countries, the emerging and least developed countries."

It also calls for a "broadening" of technology and financial transfers, as well as the use of "innovative financing mechanisms ... to help the poorest countries adapt."

94. IEA Still Sees World Diesel Refining Capacity as 'Tight' for Next 4 Years

The International Energy Agency (IEA) has revised its global crude refining capacity expansion forecast downward by 80,000 b/d, to a projected 11.6 million b/d between 2006 and 2011. New projects in the Middle East and Asia will account 10.2 million b/d of the new capacity. "While the revisions to capacity additions have been minor, more significant changes have been made to the timing of our projections – in both directions," IEA said in the February update of its Medium-Term Oil Market Report.

"Furthermore, we have identified an additional 540,000 b/d of upgrading projects and 300,000 b/d of new desulfurization capacity since last July's report. Coupled with additional investment and upgrading capacity and biofuel developments, these should have a smoothing impact on product balances over the coming years, but still leave diesel and jet fuel relatively tight."

While this forecast tightness in diesel and kero-jet has been consistent since IEA's last mid-term outlook report "lower demand growth estimates and changes to refinery [upgrading/expansion] timing have partially eased the previously expected market tightness," IEA said in its latest forecast. "Nevertheless, the distillate bias of demand growth over the period will ensure that jet and ULSD product supply remains finely balanced."

Most of the capacity expansion is set to be commissioned after 2008, peaking in 2011. Although India's Reliance has moved the start up of its second Jamnagar refinery to 2009, most project start dates have been moved back, IEA said.

The changes since the July report are focused in Iran, India, China and Kuwait. Iran has refocused its downstream strategy to reduce its need for gasoline imports. India is approaching new refineries more cautiously. China has cancelled Sinopec's planned Beihai refinery, and increasing costs and project delays have pushed back its planned Al-Zour refinery.

On the demand side, IEA projects demand for petroleum products globally will be 93.3 million b/d, 375,000 b/d lower than its July projection. "Most of the adjustments are in the OECD and stem from downward revisions to the 2005 baseline, unexpectedly weak demand in 2006 and changes to economic growth assumptions for 2007," it said.

Demand growth will be pushed by non-OECD countries, especially Asia and the Middle East.

95. Recent Technology Developments with Cars

A. Toyota Top Engineer Talks Diesel and Other Power for U.S. Market

Reuters reported that Toyota Motor Corp.'s top engineer said that diesel-powered vehicles that would clear strict clean-air regulations in the United States would be too pricey to be worth the fuel savings. "I won't deny that we might be offering a diesel in the United States some time in the future," said Executive Vice President Masatami Takimoto, who oversees Toyota's research and development. "But right now we think hybrids are much more cost competitive," he told reporters on the sidelines at the North American International Auto Show in Detroit.

But with the particulate filter traps and other added components needed to clean tailpipe emissions, Takimoto said the likely price premium on the cars would not justify a choice over hybrids for now, at least in the United States.

Toyota, a relative laggard in diesel technology, in November tied up with diesel-savvy Japanese truck maker Isuzu Motors Ltd. in an attempt to catch up, but Takimoto said a roadmap on how to proceed was wide open. In 2005, it took a stake in Fuji Heavy Industries Ltd., partly as a way to quickly add production capacity in North America.

Plug-in hybrids, which were all the buzz at the auto show in Detroit this week, could be a good way to save fuel and cut carbon dioxide emissions, Takimoto said.

But he also stressed that an advanced enough battery was still years away from practical application. "To make plug-in hybrids feasible, you'd need a battery that is far smaller, lighter and advanced than the best lithium-ion batteries out there today," he told reporters.

He said Toyota was currently developing such a battery in-house, as well as with battery-business partner Matsushita Electric Industrial Co.

Takimoto said the best use of plug-in hybrids also depended heavily on the method in which countries produce electricity. If fossil fuels such as coal are used to create electricity, the resulting emissions on a "well-to-wheel" basis would remain high, he noted.

Toyota Motor Corp. said it is aiming for a 40 percent jump in its global sales of gas-electric hybrid vehicles to 430,000 units this year. Japan's top auto maker said it also aims to boost domestic production of Prius hybrid cars by 40 percent to 280,000 units.

In 2006, Toyota's hybrid sales rose 33 percent from a year earlier to 312,500 units.

Hybrids, particularly Toyota's Prius, have gained in popularity among environmentally conscious Americans, in part due to high gasoline prices. Accounting for about 1 percent of new car sales in the United States, a hybrid couples a traditional internal combustion engine with a battery to allow for lower gasoline use.

Toyota has forecast its group -- including Hino Motors Ltd. and Daihatsu Motor Co. -- will sell 9.34 million vehicles in 2007, up 6 percent from an estimated 8.80 million units last year.

B. Mitsubishi Planning Diesel Car for U.S.

Mitsubishi Motors Corp. has announced that it will introduce a car with a new diesel engine in the U.S. market by 2010. Mitsubishi Motors is the latest among Japanese car makers to announce plans to roll out diesel models in the United States, amid increasing demand and regulations for fuel-saving vehicles.

Honda Motor Co. said in May that it will introduce a cleaner diesel engine in the United States by 2009, while Nissan Motor Co. recently said it will launch diesel vehicles by March 2011.

Mitsubishi, Honda and Nissan all said their engines will meet the new U.S. Tier 2 Bin 5 emissions regulations that require nitrogen oxides emissions to be as low as similar emissions from gasoline engines.

Mitsubishi, which is working with major shareholder Mitsubishi Heavy Industries to develop the new diesel engine, said it will install its new engine in the Lancer midsize car model.

C. German Auto Industry Seeks Diesel Surge in US

German automakers, coming off record US sales in 2006, expect growing sales of "clean diesel" cars to help them compete for fuel-conscious American buyers against Japan-based rivals, according to industry officials. The share of diesels among new US cars and light vehicles is projected to double by 2010 to about 7.5 per cent, a major opportunity for German makers, Bernd Gottschalk, the head of Germany's car industry association VDA, said at the annual Detroit auto show.

While Japanese automakers have led the way on hybrid petrol-electric cars in the US, German companies are counting increasingly on their reputation for cutting-edge diesel technology in a US market that is expected to shrink overall in 2007.

"The goal can only be to make life as difficult as possible for the Japanese," Gottschalk told a news conference on the show's first day. "We are pursuing our own path."

German automakers are gambling that high oil prices, growing environmental awareness in the US and new US government rules promoting wider availability of low-sulfur diesel fuel will aid their marketing push.

Flagging what is likely to be a major part of the campaign, Gottschalk said a compact car using turbo diesel technology proved more fuel-efficient than a hybrid in a recent test drive on a German motorway.

Diesel cars are highly popular in Europe, where the fuel is taxed significantly less than petrol. But in the US, diesel is dogged with a reputation as a dirtier, lower-performing fuel.

DaimlerChrysler's Mercedes-Benz brand, Audi and Volkswagen are promoting a common diesel technology and BMW is also looking to fire up Americans for diesel.

German automakers boosted total US sales by 6 per cent last year to a record 921,000 vehicles and raised their market share in the car segment to 9.8 per cent, Gottschalk said. BMW and Audi posted record US sales, and Mercedes sold 11 per cent more than in 2006. With total US sales expected to drop to 16.2 million vehicles in 2007, German automakers are aiming to break the 1-million mark this year, Gottschalk said.

D. VW Spells Out Strategy for Clean, Efficient Engines Now and In The Future

Negotiating the busy streets of Spain's "City of Arts and Sciences" -- chosen by Volkswagen to showcase its advanced powertrain strategy -- the VW Polo BlueMotion is not only fun to drive, but remarkably fuel efficient and clean. First shown at last year's Geneva show, VW's European market subcompact hatchback can average 60 mpg and returns as much as 73.5 mpg on the highway. Though not destined for the U.S. market, this particular Polo model is a shining example of the potential for diesel powertrains to lower fuel consumption and CO2 emissions; at 102g/km, the VW actually emits 2g/km less than the much vaunted Toyota Prius hybrid.

The keys to the Polo BlueMotion's efficiency are a three-cylinder direct injection turbodiesel, light overall weight, careful attention to the reduction of aerodynamic drag and low rolling resistance tires. (These last two factors account for a third of the Polo's fuel efficiency, as is the case with the Prius.)

One surprising aspect of the Polo BlueMotion is that it performs and handles well enough to be entertaining behind the wheel, unlike the lifeless driving characteristics of most super-economical cars to date.

The frugal Polo is just part of a near-, mid- and long-term powertrain technology strategy VW has laid out as it joins other automakers in meeting demand on the auto industry to create cleaner, more fuel efficient vehicles.

In the immediate future, VW is putting increased focus on natural gas fueled models, with its European market Touran compact van and Caddy pick-up.

The Golf hatchback, recently relaunched in the U.S. under the Rabbit nameplate, is available in Europe with a relatively small displacement, direct injection 1.4 liter gasoline engine that kicks out impressive power and torque, thanks to a combination of turbocharging and supercharging. Badged as the Golf GT TSI, this model is cheaper than the familiar high performance GTI version of the Golf, yet delivers an attractive combination of performance and fuel economy.

Although turbos and superchargers have been combined before, VW can claim to be the first to integrate these forced induction methods with direct gasoline injection. The end result is the fuel economy advantage of a downsized engine (a path being pursued by several automakers), coupled with the performance of a much larger motor. The supercharger eliminates the sluggish low rpm engine response typical in turbocharged engines.

Another thread in VW's strategy is the use of synthetic fuels. The company is running a fleet of vehicles, including a Beetle convertible, that use so-called SunFuel. Created from biomass, SunFuel takes the form of diesel, gasoline or kerosene and, as an exceptional high grade fuel, it boasts very low emissions. It is also a CO₂ neutral fuel, in that its combustion only releases as much carbon dioxide as the amount removed from the atmosphere by the energy-supplying plants.

Using conventional diesel fuel (albeit the ultra-low sulfur variety now being introduced in the US), VW is preparing its next generation of diesel powertrain aimed at the North American market in 2008. Though the technology is not ready for 2007, it will be made available the following year in popular models such as the Jetta and Passat and will meet stringent emissions standards in all 50 states, due to special exhaust catalyst systems.

In the longer run, VW's goal is to make gasoline engines as good as diesels in terms of fuel consumption and diesels as good as gasoline powertrains when it comes to emissions, says powertrain research chief, Dr. Wolfgang Steiger. Effectively melding the two engine technologies, VW is creating what it calls the "combined combustion system" or CCS. This system is already in prototype form in a Touran van, and has demonstrated five percent better fuel economy than a conventional diesel and reduced nitrous oxide (NO_x) and particulate emissions.

VW's work in the hybrid field is centered on a Touran-based research vehicle that combines a 1.4-liter turbo gasoline engine and a 20kw electric motor. Add in a nickel metal hydride battery,

plus a dry clutch version of VW's DSG transmission (itself in production on several current VW models) and VW claims it is developing a more intelligent hybrid system than rival automakers.

Like others in the industry, VW believes the hybrid path towards the electrification of the automobile ultimately leads to the hydrogen fuel cell vehicle. Though VW's FCV vehicle development appears to have lagged behind pioneers in the field, notably General Motors, Toyota and Honda, the German company recently revealed a breakthrough in the chemistry of the fuel cell stack itself. VW claims to have solved the problem of making stacks operate at higher temperatures (thus simplifying cooling requirements and reducing overall system complexity). The company says it expects to have a high temperature fuel cell research vehicle operating by 2010 and suggests that a practical, affordable fuel cell vehicle could follow by 2020.

E. Ford Unveils Rechargeable, Hydrogen-Powered Car

Ford Motor Co. has unveiled a first-of-its kind test car powered by a combination of compressed hydrogen and a "plug-in" battery pack that can be recharged with a standard home electric cord. The concept vehicle -- a modified Ford Edge -- was one of several technologies Ford and other automakers were showing off at the Washington, D.C., auto show intended to highlight their progress in pushing into alternatives to gasoline, including ethanol and clean-burning diesel.

Ford said its Edge was the first drivable hybrid vehicle with batteries that draw power from a hydrogen fuel cell and can be recharged by a conventional electric outlet.

Plug-in vehicles, which have batteries that can be recharged with a standard electrical outlet, have drawn backing from both environmental activists and power utilities since they promise to shift auto-related energy consumption from oil and to the US power grid.

Ford also said it had significant technical hurdles to overcome before it could sell its new electric and hydrogen car, noting that any fuel cell vehicle still cost millions of dollars to build. "Commercialization ... remains a tantalizing but distant goal," said Sue Cischke, Ford vice president of environmental and safety engineering.

Ford said the "HySeries Drive" technology developed for the Edge test vehicle was capable of delivering the equivalent of 41 miles per gallon when running on compressed hydrogen.

Gerhard Schmidt, Ford's vice president of research and advanced engineering, said the vehicle, based on the Ford Edge crossover platform, gives the company "the ultimate in flexibility in researching advanced propulsion technology."

"We could take the fuel cell power system out and replace it with a downsized diesel, gasoline engine or any other powertrain connected to a small electric generator to make electricity like the fuel cell does now," Schmidt said.

Ford's plug-in hybrid Edge operates in "battery only" mode for the first 25 miles, moving at speeds of up to 85 miles per hour. When the battery is depleted to 40 percent, it seamlessly shifts to the fuel cell mode, which recharges the battery for 200 more miles of driving.

The 336-volt lithium ion battery pack can be fully charged in about eight hours with either a 110-volt or 220-volt outlet.

The combined plug-in/hydrogen vehicle offers a new way to address some of the challenges of hydrogen fuel cells. The pollution-free technology could provide a sustainable energy source through the mixture of hydrogen and oxygen, but it faces a number of hurdles with its size, weight, cost and lack of hydrogen filling stations.

Ford reduced the fuel cell's size, weight and cost in half and said its approach would double the life span of the fuel cell's stack. Mujeeb Ijaz, Ford's manager for fuel cell vehicle engineering, said the changes were "a great step to commercializing" the vehicle.

Ford has not committed to a date when the vehicle would be available. The automaker said the vehicles cost millions of dollars each, and commercialization remains hindered by a lack of a hydrogen infrastructure and the cost of lithium-ion batteries.

Ford developed its first hydrogen fuel cell vehicle in 2001. A number of its rivals, including Toyota Motor Corp and Honda Motor Co also have fuel cell prototypes in development.

F. GM Goes Electric with New Concept Car at Auto Show

Struggling auto giant General Motors Corp. has revived its once-failed idea of a mass-market electric car, unveiling a new "concept" car called the Volt designed to use little or no gasoline. Introduced at the North American International Auto Show here, the Chevrolet Volt will draw power exclusively from a next-generation battery pack recharged by a small onboard engine -- if the technology is ready in two or three years.

"We have a thoroughly studied concept, but further battery development will define the critical path to start of production," said Jon Lauckner, a GM vice president for product development.

The Volt is designed to run for 40 miles on pure electric power, making it marketable for everyday family use. For the average American driver who drives 40 miles a day, or 15,000 miles a year, the Volt will require no fuel and lead to an annual savings of 500 gallons of gasoline, GM said.

Unlike current gas-electric hybrids, which use a parallel system twinning battery power and a combustion engine, the Volt will be driven entirely by electric power.

GM has been stung by criticism that it conspired to kill the EV1, an experimental electric vehicle program it launched in 1996 and killed by 2003. The documentary film "Who Killed the Electric Car?" released last year criticized GM for first developing but then abandoning electric vehicles.

GM product chief Bob Lutz suggested that critics would have to revise their thinking about GM's commitment to addressing environmental concerns and US dependence on oil imports after seeing the Volt. "An electric vehicle coming from General Motors, I am shocked, truly shocked," Lutz said. "The GM electric vehicle is an inconvenient truth."

GM said the Volt will have advantages over the defunct EV1, including smaller batteries, faster recharging, more room for passengers, and a faster maximum highway speed.

"This is not a PR exercise or a pure show car," Lutz told reporters at the auto show. "This is a real program with real money behind it that is heading for production."

The Volt is part of GM's bid to demonstrate it is investing in break-through technology with some of the US\$9 billion saved through a wrenching program of job cuts and plant closures. The push to develop environmentally friendly cars is also an attempt by GM to distance itself from its close association with gas-guzzling sport utility vehicles, a reputation executives say has hampered its sales in some markets.

The Volt's combustion engine is designed only as a supplement to keep its batteries charged, an innovation GM executives hope will help the automaker jump ahead of Toyota Motor Corp., which now dominates the hybrid market.

GM cut 34,000 jobs last year and plans to close 12 plants. Toyota is expected to surpass GM in global production this year, ending a run of more than 80 years for GM as the world's No. 1 automaker.

In November, GM Chief Executive Rick Wagoner used a speech at the Los Angeles Auto Show to announce that GM would build plug-in hybrid vehicles, a potential industry first. Plug-in hybrids, a favorite among many environmentalists, are capable of being charged with a standard electric outlet, a feature GM said it would build into the Volt.

Battery technology is key to the next generation of hybrid vehicles as automakers seek ways to lower the cost of batteries and increase their power and storage capacity. The Volt will be outfitted with new lithium-ion battery packs, which hold a charge longer than the nickel metal hydride batteries now used widely in automobiles.

Lauckner said the Volt should be ready for production around the same time the lithium-ion batteries will be, which GM expects to be in two to three years.

Automakers have been cautious that lithium-ion batteries, which are now used in consumer electronics such as laptop computers, have a tendency to overheat.

But GM also plans to introduce hybrid systems in its Saturn Vue, Saturn Aura and Chevrolet Malibu cars and in its Chevrolet Silverado and GMC Sierra trucks. Last week, GM awarded lithium-ion battery development contracts for its Saturn Vue Green Line hybrid to Johnson Controls Inc. affiliate Johnson Controls-Saft Advanced Power Solutions and Cobasys, a venture of Chevron Corp. and Energy Conversion Devices Inc. Cobasys will work with privately held A123Systems to develop the technology.

G. Honda Mulling Plug-Ins, Sees US Sales Rise

Honda Motor Co Ltd has announced it is targeting a US sales increase of 3 percent in 2007 and is considering developing a plug-in electric hybrid vehicle to add to its lineup.

Honda, which saw sales rise 3.5 percent last year, expects higher demand for its Civic mid-size sedan, Fit compact car and CR-V sports utility vehicle to boost sales in 2007, President and Chief Executive Takeo Fukui told reporters on the sidelines of the North American International Auto Show.

The Japanese automaker is increasing production of Civic sedans and CR-V SUVs this year, he added.

Honda, known for building fuel-efficient vehicles, is enjoying strong demand for the remodeled Civic sedan and CR-V crossover, keeping supply short of orders. To alleviate the bottleneck, Honda will begin production of the CR-V at its plant in Mexico from the fall of 2007.

The Tokyo-based car maker has already announced a slew of new factories and expansions last year, including plans for a car plant in Indiana to start operations in late 2008.

The company is also looking into the development of plug-in hybrids but battery technology remains a significant barrier to successful development, Motoatsu Shiraishi, president of Honda Research and Development, told reporters at the auto show. "We are studying what kind of conditions would enable a plug-in," Shiraishi said, adding that the two major challenges to introducing a hybrid is the current battery capacity, which has to improve significantly, and speed of recharging it.

Plug-in hybrids, a favorite among many environmentalists, are capable of being charged with a standard electric outlet.

Battery technology is key to the next generation of hybrid vehicles as automakers seek ways to lower the cost of batteries and increase their power and storage capacity.

Shiraishi said Honda also plans to introduce diesel engines in the United States by the end of 2009. Currently, Honda is working to meet the stringent US standards for cleaner emissions from diesel vehicles, he said. The Japanese automaker plans to offer diesel engines in mid-size and larger vehicles, Shiraishi said. But he declined to specify which model will be first to be fitted with a diesel engine.