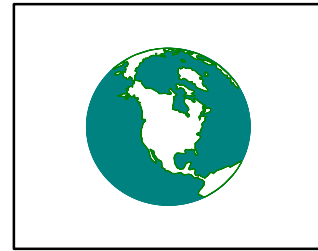


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CAR LINES

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EUROPE

1. EU Air Quality Worsening

EU air quality has deteriorated over the last few years with respect to three major pollutants, the European topic centre on air and climate change (ETC/ACC) reported in a new study¹. Particulate matter (PM10), nitrogen dioxide (NO₂), and ozone concentrations all exceeded legal limits in a "considerably" higher proportion of measured zones in 2005 than in 2001.

The percentage of EU-25 zones exceeding a daily limit value for PM10 was 44 per cent in 2005. A health limit for ozone was broken in over a third of all zones and one to protect vegetation in nearly a quarter. The annual legal limit for NO₂ was exceeded in 26 per cent of zones.

Other air pollutants, including sulfur dioxide (SO₂), carbon monoxide, benzene and lead, exceeded legal limits in less than six per cent of zones. Daily, annual and winter SO₂ concentrations exceeded limits in fewer cases than in 2001.

Traffic is pinpointed as the main culprit for worsening air quality in 2005. More than 70 per cent of NO₂ excesses, over half of PM10 excesses, and at least a fifth of ozone excesses are blamed on local traffic. For SO₂, the main factor is industry and power generation.

2. EU Aims For Quick Deal On Fuel Quality Law

MEPs and EU governments are trying to reach a first-reading agreement on draft legislative proposals to reduce lifecycle greenhouse gas emissions from road fuels. Dutch socialist MEP Dorette Corbey, the parliament's rapporteur on the revision of the EU fuel quality directive, is pursuing the deal because the law is "an important climate measure that will require detailed work to implement," according to an aide.

The parliament's environment committee has already voted on the draft law. It called for the inclusion of biofuels sustainability criteria along the lines of those proposed by the European commission.

Slovenian environment minister Janez Podobnik told the parliament's environment committee that he welcomed the prospect of a first-reading deal.

Attempts to get swift agreement on a law on greener transport fuels are being put at risk, however, by arguments over the environmental merits of biofuels.

The proposed directive has become part of the Commission's efforts to reduce emissions from cars, because it would also oblige fuel suppliers to reduce, by 1% a year from 2011-20, carbon dioxide (CO₂) emissions from the production, transport and use of fuels, i.e., the lifecycle emissions. Even without this requirement, the directive would encourage greater use of biofuels, but amid growing concern that not all biofuels help reduce CO₂ emissions, MEPs and many member states have been pressing for tough environmental standards to be written into the directive to ensure that it does not promote unsustainable biofuels.

¹ "Reporting on ambient air quality assessment - preliminary results for 2006, ETC/ACC Technical Paper 2007/5", Released: 2008/01/28, Prepared by: Frank de Leeuw and Edward Vixseboxse (MNP, ETC/ACC)

Dorette Corbey, the Dutch Socialist who is guiding the fuel quality directive through Parliament, is in favor of adding such wording to the current text. So too are reportedly a majority of member states.

But such a move would upset the Commission's transport and energy department (DG Tren) which believes that the 'sustainability criteria' should be set by the renewables directive, which was only recently proposed as part of a package of laws on energy and climate change. The fuel quality directive, on the other hand, is the work of the Commission's environment department (DG Env). It will be decided by the Council's environment ministers whereas the renewables directive will be decided by energy ministers, who might take a less critical view of the environmental performance of biofuels.

Included in the Fuels Quality Directive as amended by the Parliament's Environment Committee is a ban on the use of the gasoline additive MMT. After intense lobbying by the producer of MMT, Afton, the US Department of Commerce has written to several EU member states opposing the MMT ban.

3. New Car Registrations Grow In New Member States, Flat In Western Europe

Nearly 16 million new cars were registered in Europe (EU27 + EFTA) in 2007 or 1.1% more than the year before. Soaring oil prices, changes in taxes, shrinking credit availability and purchasing power restrained buyers' confidence and the demand for new cars in some of the Western European countries (+0.2%). In the new EU member states, where car density is still much lower and many households have been able to afford buying a new car only recently, growth was much higher (+14.5%).

Western European 2007 figures were to a great extent pulled down by expected slowdown on the German market (-9.2%); due to a late 2006 rush in purchases ahead of January 2007 VAT increase, 320,000 less new cars were registered in 2007.

4. Slovenia: Climate Change, Biodiversity, Euro VI Priorities for EU Presidency

Slovenia will use its European Union presidency to move existing initiatives forward rather than launching any significant new measures, the country's environment minister said on January 23rd. Speaking to the European Parliament Environment Committee in Brussels, Janez Podobnik, Slovenian minister for the Environment and Spatial Planning, said his main priorities through June 30th would be climate change and biodiversity. In addition, Slovenia will seek to get agreement on legislative dossiers on waste, mercury exports, and emissions standards for trucks and buses.

On internal EU environmental legislation, Podobnik said Slovenia would use its EU presidency to finalize several draft laws that under EU rules must be decided jointly between the European Parliament and EU Council. On the so-called Euro VI standards for trucks and buses, setting limits on emissions of nitrogen oxide and particulate matter, as proposed by the European Commission on December 21st, Podobnik said Slovenia will seek agreement by the end of its EU presidency. On including aviation emissions in the EU emissions trading scheme, Podobnik said the EU Council would reformulate its position by April, after it failed to agree with the European Parliament following the first reading of the legislation in November 2007.

France will take over the presidency of the European Union from Slovenia in July, and many major legislative dossiers will be largely overseen by the French, with Slovenia seen as playing a holding role. Significant issues to be moved forward in the second half of 2008 include post-Bali international climate change discussions and the Commission's energy and climate package setting binding carbon dioxide emission reduction targets for the European Union, which was published on January 23rd (see below).

5. EU Proposes Emissions Targets, Aiming for 20 Percent Cut by 2020

On January 23rd, the European Commission proposed detailed targets for reducing emissions of greenhouse gases as part of a series of measures that it said would reinforce Europe's global leadership in the fight to tackle climate change. EU Environment Commissioner Stavros Dimas said the main objective was to "strengthen the EU's position in international negotiations" on a successor to the Kyoto Protocol, even though the targets apply to EU countries only.

Under the proposals, the European Union would have to reduce emissions by 20 percent by 2020 compared to 1990 levels, with individual EU countries given legally binding differentiated targets depending on their level of economic development. The target would rise to 30 percent if other industrialized countries agree to similar cuts as part of a binding post-Kyoto agreement.

By taking on such targets, Dimas said, EU countries would gain "first mover advantage" in developing emissions-reducing technologies, while companies covered by the EU Emissions Trading Scheme (ETS) would benefit from predictability through 2020 as a basis for investment decisions.

Among the main points in the proposals are measures to expand the EU Emissions Trading System beyond power generation and other energy-intensive industries, to reduce the number of emissions allowances, and to increase the auctioning of allowances. The Commission also wants to impose emissions targets on industry sectors not covered by the ETS and is proposing guidelines for projects to promote carbon capture and storage technology.

Along with the climate change proposals, the Commission also announced measures on renewable energy, energy efficiency, and biofuels. The Commission is setting targets so that 20 percent of the EU energy mix comes from renewable sources, biofuels constitute 10 percent of vehicle fuels, and energy savings through efficiencies amount to 20 percent. All targets are to be reached by 2020.

Most of the detailed proposals will require approval of Parliament and the member states.

Commission President Jose Manuel Barroso said the proposals had been designed so that "we are encouraging [non-EU countries] to join us." The proposals "will create jobs in Europe and not destroy jobs," Barroso said, calling the measures "a package for protection of our planet and environment but also for promoting energy security."

The overall EU target of 20 percent emissions cut would be met in two ways, according to the proposals:

- by reduced emissions from large-scale industrial plants covered by the EU ETS, and
- by measures to be taken by sectors not covered by the ETS, such as transport or agriculture.

For non-ETS sectors, EU member states have been given differentiated emissions targets, with gross domestic product on a per capita basis the main factor in allocating targets. Because of the burden-sharing approach taken by the Commission, richer member states will be asked to make the deepest cuts for non-ETS sectors, while the 12 poorest of the 27 EU countries will be allowed to increase emissions, so as not to undermine development. The targets range from a 20 percent cut in emissions in Denmark, Ireland, and Luxembourg, to a 20 percent increase in Bulgaria. Of the largest EU economies, France and Germany were told to cut emissions by 14 percent, while the reduction targets for Italy and the United Kingdom were set at 13 percent, and 16 percent, respectively.

Emissions reduction measures for sectors outside the ETS were not specified in the proposals. Member states would be allowed to decide on those measures to meet their individual targets. They could include tax incentives, levies on activities that generate pollution such as transportation and construction, or public procurement policies for climate-friendly goods and services.

The second element of the Commission's plan to reduce emissions by 20 percent by 2020 was a proposed overhaul of the EU ETS. The main changes to the ETS, to take effect from the beginning of the third trading period in 2012, are:

- a single EU emissions cap, replacing the current system of national caps proposed by member states (and thus scrapping of national allocation plans, which set out allowances during phases one and two of the ETS);
- increased auctioning of emissions allowances, rather than free allocations to participating installations; and
- Extension of the ETS to aluminum and ammonia producers, and to nitrous oxide and perfluorocarbons, in addition to carbon dioxide.

Overall, the Commission said it would decrease the number of allowances in the scheme--whether auctioned or given for free--from 1.97 billion in 2013 to 1.72 billion in 2020. Each allowance represents one metric ton of carbon dioxide. This compares to an average annual allocation of 2.08 billion tons during the second phase of the ETS, from 2008 to 2012.

On January 28th, Environment Commissioner Dimas called on the European Parliament to fast-track the draft legislation so that the proposals can be adopted by mid-2009. Fast-tracking the legislation would ensure that it is adopted within the mandate of the current European Parliament, and that it is in place before the United Nations climate change conference in Copenhagen at the end of 2009, during which the Commission hopes an international agreement will be finalized to succeed the Kyoto Protocol.

Dimas's comments followed statements made by the environment ministers of the Czech Republic, France, Slovenia, and Sweden in the European Parliament. In a joint news conference, Slovenian Environment and Spatial Planning Minister Janez Podobnik said the countries would aim to reach a common agreement on the legislative package before June 2009, when elections to the European Parliament take place. Slovenia currently holds the rotating EU presidency and will be succeeded by France (second half of 2008), the Czech Republic (first half of 2009), and Sweden (second half of 2009). The countries will chair meetings of EU member states in the EU Council and will determine the Council's legislative agenda, thus playing key roles in the success or failure of the climate change proposals.

6. Dutch Welcome EU Euro VI Heavy Vehicle Pollution Plans

A European commission proposal to cut pollution from new heavy-duty vehicles is one of the most critical and cost-effective measures to improve local air quality in the Netherlands according to a new report from the national environmental assessment agency (MNP). Implementing the Euro VI cuts would reduce by 30 per cent the number of places where NOx levels would exceed legal standards in Holland by 2015, says the MNP. Total NOx emissions from traffic would decrease by 22 per cent by 2020, it calculates.

The plans come too late to help the Netherlands meet particulate matter standards (PM10) by 2011, but will help it meet new fine particulate matter targets (PM2.5). PM2.5 emissions will decrease by 12 per cent by 2020 as a result of the proposals, the MNP says.

7. Swedish Subsidies Boost Green Vehicle Sales

Sales in Sweden of hybrid or biofuel-powered vehicles rose by 49 percent in 2007, according to the country's Environmental Protection Agency. In a January 18th statement, the agency said that a series of subsidies and financial incentives were having a significant effect on the market, with "green" vehicles now making up 18 percent of the total number of cars sold. In addition to point-of-purchase financial incentives, Sweden's eco-motorists enjoy such incentives as reduced parking fees, congestion charge exemptions, and tax credits.

8. Romania To Revise Green Car Tax

The Romanian government has bowed to European commission pressure and reformed a car registration tax scheme that had threatened to tax imported cars more heavily than those sold within the country. Under the scheme a scale of charges based on car age would have applied to imported cars. The aim was to prevent an influx of older, more polluting cars. Romania has now agreed to base the scale structure on actual pollution levels and apply it to all car registrations after the commission said it was discriminatory in its original form.

9. New UK Green Taxes in the Works For 'Gas-Guzzling' Cars

Motorists face having to pay new green taxes as ministers step up their war on "gas-guzzling" cars. The Government wants to get people out of high-emissions vehicles by making them more expensive, while also cutting the cost of driving for more environmentally-friendly options. Two recently published reports commissioned by the Department for Transport examine the impact of raising the cost of buying the most polluting cars, and of increasing running costs by raising road tax or fuel prices.

The first detailed report, by Cambridge Econometrics, sought to identify policies that "might be used to reduce CO2 emissions from road transport." It said its findings confirmed that people buying cars in the middle tax bands were most likely to be affected by small changes in both purchase price and running costs. According to the report, these drivers are most likely to choose more environmentally friendly cars next time they go into the showroom.

This was reinforced by a second study, by the Economics for the Environment Consultancy, which examined what would happen if only 1 per cent was added to the showroom price of new cars. The economists found the biggest impact on carbon dioxide emissions came when prices were hiked up for cars in the middle of the market, between 141 grams CO2 per kilometer and

225. In this range - encompassing a Ford Fiesta 1.4 to a Ford Focus 2.5 - the change in price would see large numbers of motorists buying greener cars.

10. London Launches Low PM Emission Zone For Trucks

London has become a 'low emission zone' after transport officials launched a campaign to cut traffic pollution and improve the British capital's air quality. The 49 million pound scheme will use a network of cameras to monitor the emissions of large diesel trucks (later expanding coverage to smaller commercial vehicles) and impose heavy fines on those exceeding EU exhaust limits.

Road haulers are unhappy with the scheme, saying compliance will be expensive, but transport officials say improving the air quality will help millions of Londoners, especially those suffering from asthma and other respiratory problems.

Low emission zones are already planned or in operation in 70 towns and cities in eight European countries including Norway, the Netherlands and Germany.

The capital already has a congestion pricing scheme, a charge on vehicles entering the city center, but that was aimed at reducing congestion rather than cleaning the air. The new scheme will initially apply only to diesel trucks over 12 tons which have to comply with EU limits on particulate emissions. The scheme will be extended to trucks over 3.5 tons, coaches and buses in July 2008 and to larger vans and minibuses in October 2010. The scheme will operate all day every day, and cover an area of 1,580 square kilometers (610 square miles).



Cameras at 75 sites in and around the zone will photograph vehicles' license plates and heavy fines will be issued for non-compliance.

All trucks made after October 2001 comply with the Euro 3 standards of particulate emissions of 0.05 grams per kilometer, the level adopted by the scheme. Trucks that do not comply and have not been retro-fitted with exhaust controls to bring them up to standard will be charged 200 pounds a day to be in the zone, with a penalty of 1,000 pounds if they fail to pay. The

scheme cost 49 million pounds to set up but is only expected to raise 2 to 3 million pounds a year in daily charges and a further 1 million pounds in penalty fees.

For more information on low emissions zones in Europe see www.lowemissionzones.eu.

11. Car Safety And Efficiency "Can Be Complementary" Says Industry

The car industry can improve the safety of its vehicles while reducing pollutant emission levels, car industry experts stated at a recent conference in Brussels. European carmakers have previously cited EU vehicle safety requirements as a limiting factor in their efforts to reduce

carbon dioxide emissions from cars. But at a road safety conference in Brussels industry experts said efforts to improve the safety and sustainability of cars "can be complementary".

Daimler-Chrysler's Markus Fach said safety applications such as automatic cruise control and intelligent navigation systems would also deliver emissions reductions by limiting acceleration and avoiding congestion. Wolfgang Reinhardt, regulatory affairs director for the European trade body ACEA, added that manufacturers were targeting improvements in both vehicle safety and efficiency because "both are features that sell cars".

The main limitation to improvements in both areas is affordability, Mr. Reinhardt added. "If all the safety and environmental systems currently under development were added to a new car, they would increase the price by three to five thousand [US] dollars," and the impact of this would be "disastrous" for the industry, he said.

In response to EU plans for binding limits on CO2 emissions from cars, ACEA has previously stressed the need for complementary measures such as promoting eco-driving. But some industry experts expressed doubt about the effectiveness of such schemes. Road safety researcher Adrian Hobbs warned that "it is very difficult to influence road users' behavior". Indeed, ACEA's Mr. Reinhardt said that he had found eco-driving in Brussels "annoying and boring", and argued that improving traffic flows in urban areas would be more effective in reducing overall fuel consumption.

12. Norway Making Some Progress But GHGs, NOx Remain Challenging

Norwegian air pollution control measures introduced over the past several decades are reducing emissions, but not always fast enough to meet government and international targets, according to a new emissions inventory published by statistics office SSB. SSB reported that sulfur dioxide emissions were now below a cap set by the UN's Gothenburg protocol, and that greenhouse gas emissions fell by two per cent from 2005 to 2006. But it said the reduction in greenhouse emissions would not continue because of new and planned gas power installations. And nitrogen oxide emissions were proving difficult to control.

Meanwhile Norway's pollution control authority (SFT) has proposed subsidies for fitting particle filters on diesel vehicles produced between 2000 and 2009 but it cautioned against installing filters on older vehicles.

13. Dutch Parliament to Consider Taxing Drivers Based on Distance Traveled

The Dutch Parliament is set to begin discussion of a government "pay-as-you-drive" plan to tax drivers' road use based on distance driven, according to a representative for Camiel Eurlings, Minister of Transport, Public Works, and Water Management. Eurlings wrote to Parliament in December to propose legislation introducing "a price per kilometer [driven] on all Dutch roads, differentiated according to time, place and environmental factors," with "a collection system using the latest satellite technology."

The new system will gradually replace the Dutch road tax, the vehicle sales tax, and the Euro vignette for freight vehicles, the ministry said.

The government also said it wants to introduce the system for freight transport in 2011 and for passenger cars in 2012, with "complete system rollout in 2016," the spokeswoman said. That schedule will require expediting legislation and tendering processes, as well as intensive

technical and policy cooperation with Belgium, France, and Germany, the ministry said. Negotiation with neighboring countries is reportedly important because if the Netherlands' neighbors choose to implement the same system it could lower the costs for everyone, because the companies that make the equipment--such as transponders and satellite services--would have a bigger market. The Netherlands also wants a level playing field for its freight companies. If neighboring countries' freight vehicles are not trackable, and hence not taxable, it could put Dutch companies at a disadvantage.

The ministry said the plan would "put the Netherlands at the forefront in terms of kilometer pricing. Although other nearby countries have different forms of mobility payments in place, none of them has opted for a system with national coverage."

14. Danish Shipper Emits More Pollution Than Entire Country

Denmark's largest firm, the shipping conglomerate A.P. Moller-Maersk, emits more greenhouse gases than the rest of the country combined according to media reports. Among the thousand or so vessels operated by the company is the container ship "Emma Maersk", the largest of its kind in the world. It consumes 200,000 liters of fuel or "the equivalent of a small Danish city" per day, press reports say. Annual emissions from the Maersk fleet are said to total between 40 and 50 million tons of carbon dioxide.

Like the aviation sector, shipping is exempt from emission reduction targets under the Kyoto protocol. Last month the European commission decided not to propose its inclusion in the EU's carbon trading scheme, despite ongoing moves to include aviation and earlier hints that ships would be covered.

15. France, Aviation Sector Sign Pact To Reduce Greenhouse Gas Emissions

On January 28th, France signed a new environmental agreement with the aviation industry that calls on airlines, airplane manufacturers, and airport operators to drastically reduce their greenhouse gas emissions over the 2008 to 2012 period. The new agreement also calls for important reductions in noise and nitrogen oxide emissions.

The new agreement was signed by executives from Air France-KLM and the Paris Airport Authority (ADP), as well as representatives of the air freight, airport management, aircraft manufacturing, and general aviation sectors. The agreement is part of France's wider effort to include its domestic aviation industry in pan-European efforts to reduce the climate change impacts of air travel. In addition, all industry representatives who signed the new pact agreed that aviation should be included, as soon as possible, in the European Union's carbon trading program.

Air France-KLM President Jean-Cyril Spinetta said France's largest airline would implement by 2012 a 20 percent reduction, compared with 2005 levels, in carbon dioxide emissions from long-haul flights between France and the country's overseas territories. Spinetta also agreed to seek a 5 percent reduction in emissions from domestic flights by 2012, when compared with the 2005 baseline.

Fleet modernization--with an estimated cost of [Euros]2 billion (\$2.96 billion) annually--will account for the lion's share of the anticipated emissions reductions, which should bring average fuel consumption down to 3.7 liters (1 gallon) of fuel per passenger per 100 kilometers (62

miles) traveled, or roughly equal to other forms of transport, such as buses or trains, Spinetta said.

Aircraft manufacturers, for their part, vowed to work towards the European Union's long-term objective, which calls for a 50 percent reduction in both fuel use and carbon dioxide emissions per passenger per kilometer for all new planes by 2020 compared to 2000 levels. Aircraft manufacturers also agreed to work toward other pan-European objectives, including an 80 percent reduction in nitrogen oxide emissions and a 50 percent reduction in noise compared to the 2000 baseline.

Airlines and air freight companies agreed to carry out detailed studies on carbon dioxide production across their activities, with a view toward reducing fuel use and emissions from airborne operations, as well as from their lighting, heating, and ground services.

Airport operators agreed to a series of actions aimed at reducing their carbon footprint and other environmental impacts. Operators also agreed to better communicate with employees and air passengers about climate change and environmental goals.

For the Paris Airport Authority, the plan will include:

- a 10 percent reduction by 2015 in the average distance planes cover on the ground at the three Paris airports, to reduce both noise and air pollution;
- a 20 percent reduction by 2020 in energy use at airports, and a 40 percent reduction by 2040;
- a 30 percent reduction in carbon dioxide emissions from ground services vehicles by 2010; and
- Implementation of high environmental quality standards in all new construction.

The target reductions for the Paris Airport Authority are based on 2004 levels.

The new pact comes on the heels of a December 2007 government decision to raise noise taxes and alter flight plans at airports nationwide to help curb noise pollution.

16. EU Launches 1.6 Billion Euro Clean Aircraft Technology Plan

A E1.6 billion public-private research partnership that aims to drastically reduce the environmental impact of aviation has been officially launched in Brussels. The EU "clean sky" joint technology initiative (JTI) will develop pre-competitive aircraft technologies designed to help meet the sector's self-imposed targets to halve noise and carbon dioxide emissions and slash 80 per cent off nitrogen oxide (NOx) emissions by 2020. EU funding will amount to E 800 million over the project's seven-year lifetime (2008-14). This figure will be matched by industry.

The official launch followed publication of the EU regulation establishing the initiative in the bloc's official journal. The regulation was approved by EU governments in December.

17. French Billionaire Pushing Improved Car Batteries

Billionaire Vincent Bolloré has opened a new factory to produce batteries for electric cars. The factory, on the site of a family's paper business started in 1822, will produce 10,000 lithium-

metal-polymer batteries a year and cost 36 million Euros (US\$52.8 million), taking investment in the project to 250 million Euros. The BatScap plant is a joint venture between Bollore Group and state-controlled power utility EDF. The super-capacitors it produces can be used in electric cars and hybrid vehicles. Bollore and EDF are already developing their own electric car, the BlueCar.

In December, Bollore sealed a joint venture deal with Italian car design group Pininfarina to put a four-seater electric car on the market by the summer of 2009. Cedric Bollore, Bollore's cousin, said Pininfarina would produce cars from 2009 and, from 2012, at a rate of 15,000 cars per year. He said the cars would be available by lease at 500 Euros per month and would target densely populated centers such as Paris, London, New York, Tokyo and San Francisco.

18. Russia Appoints New Top Environment Official

On January 22nd, Russian Prime Minister Viktor Zubkov appointed a new head of the country's environmental watchdog Rosprirodnadzor, part of the Natural Resources Ministry. Zubkov appointed Vladimir Kirillov to replace Sergei Sai as Rosprirodnadzor chief official, the government press-service said in a statement.

Kirillov, 52, has no environmental experience so far. Following a career in the Armed Forces, he subsequently served as an official in regional administrations, including a post as deputy governor of the Leningrad region in 2000-2007.

In the meantime, Russia's leading politician suggested the establishment of an independent environmental government agency. First deputy Prime Minister and leading presidential candidate Dmitry Medvedev said on January 21st that Russia needed one agency of environmental control. "We have a large number of structures with overlapping powers, so we have to determine a dedicated agency" to tackle environmental issues, he was quoted as saying by the government press service.

19. EU Clean Vehicle Procurement Law Proposed

All public authorities in the EU would be forced to consider the lifetime cost of pollution emissions and fuel consumption when procuring road vehicles under draft legislation tabled by the European commission in December.

The proposed directive would establish a harmonized EU methodology for calculating the lifecycle costs of fuel consumption and emissions of carbon dioxide (CO₂), nitrogen oxides (NO_x), hydrocarbons and particulate matter (PM).

Contracting authorities and public transport operators would then be required to internalize these external costs when calculating the overall price of a vehicle for procurement decisions. This requirement would be legally binding from 2012, but member states could apply it earlier if they chose to do so.

As an example the commission says that for a bus costing E150,000, lifecycle fuel consumption costs of over E300,000 and NO_x-related costs of nearly E90,000 would have to be taken into account.

Existing EU procurement rules state that procurement decisions should be taken based either on the lowest price or the "economically most advantageous" offer.

Quoting a study by consultants PriceWaterhouseCoopers, the commission estimates that the proposed law could save up to 1.9m tons of CO2 emissions annually by 2017, equivalent to 0.5 per cent of total EU transport emissions. By the same year, vehicle purchase costs would increase by some E11.5bn, but would be more than offset by fuel savings of E21.3bn and avoided emissions worth nearly E12bn.

The commission's new draft legislation follows the withdrawal in 2006 of a proposal requiring public authorities to ensure that at least 25 per cent of heavy vehicles purchased meet an EU "enhanced environmentally friendly vehicle" standard (EEV).

By extending the proposal to cover the purchase of all types of vehicle by public authorities, the new draft is likely to get a better reception from MEPs. But the text will also have to be endorsed by EU governments before it can become EU law.

20. Europe Plans Tougher Limits, New Tests For Noise Emissions

On December 11th, EU Industry Commissioner Gunter Verheugen discussed plans to overhaul EU legislation regarding noise emissions from vehicles, motorcycles, and tires. In a question-and-answer session at the European Parliament, Verheugen told lawmakers that current emission limits are not producing "the expected effect."

He blamed the current type approval tests used by manufacturers to test noise levels on new vehicles, saying they no longer reflect "real-world driving behavior," particularly regarding sound levels generated by heavy vehicles in urban traffic.

Current limits date from a 1995 review of the 1970 law on the permissible sound level and the exhaust system of motor vehicles (Directive 70/157/EEC). Current noise limits range from 74 decibels for automobiles to 80 decibels for heavy trucks.

Verheugen said the Commission will propose "quite considerable" reductions in noise standards, to come into force "around 2012." The reductions will range from 4 decibels for automobiles to 6 decibels for commercial vehicles.

Work on new noise-level test methods is now complete, Verheugen said, but he did not elaborate on how the new methods differ from current approval tests. Vehicle manufacturers will continue to use the current tests until 2009 to obtain type approvals for new vehicle models. But the Commission wants manufacturers also to use the new test methods to generate data on which new noise emissions limits can be based.

The Commission will also propose the **abolition of additional noise emission allowances** for direct-injection diesel engines, off-road vehicles, and sports cars, Verheugen said.

And for motorcycles, new noise tests--developed in cooperation with the United Nations standards body, the U.N. Economic Commission for Europe (UNECE)--are "close to being finalized," Verheugen said. Discussions continue on the use of additional roadside tests to be carried out as part of the type approval procedure. Such tests will allow comparison between current type approval tests and measurements taken during later roadside checks "in order to detect motorbikes that have been tampered with or that are insufficiently maintained," Verheugen said.

21. EU Ministerial Aviation Carbon Trade Deal Released

The council of ministers has published the text of a political agreement reached by EU environment ministers on 20 December to include airlines in the bloc's carbon emission trading scheme (ETS). The text confirms the desire of EU government to include all flights into and out of the bloc from 2012, with allowances capped at 100 per cent of average annual emission levels from 2004-06.

22. Germany Begins Ban On Polluting Cars In City Centers

Three German cities, including the capital Berlin, began implementing a new air pollution system at the start of the New Year that bans the dirtiest vehicles from their centers. Drivers in Berlin, Cologne and Hanover are now required to display a colored badge showing the level of pollution caused by their vehicle, with a scale of red, yellow and green.

Some vehicles, notably an estimated 1.7 million old diesel cars and vans, will not qualify for even the most polluting red badge and will be prohibited from driving in central areas.

Drivers without a badge caught in the city centre will face a 40-euro (60-dollar) fine and will be docked a point on their driving license.

The system is to be extended to about 20 German cities in the course of the year, including Stuttgart and Munich. It applies to all vehicles, including those registered outside Germany, but some officials have indicated that foreign cars will be treated with leniency. In Berlin, city authorities have decided not to punish errant drivers until the end of January.

The reform "is the most serious attempt until now to get to grips with the most serious source of air pollution, which causes 75,000 premature deaths per year," said German green group Deutsche Umwelthilfe.

23. Milan's Pollution Charge Gets Off to Smooth Start

The Italian city of Milan introduced a "pollution charge" for drivers on January 2nd, in an effort to cut smog levels, with light traffic ensuring the system suffered only a few teething troubles. Several motorists complained about a scarcity of outlets selling the pass that allows entrance to the centre of the Italian financial capital and the council Web site allowing online payment collapsed on the eve of the launch.

Under the innovative "EcoPass" system, cars will be charged up to 10 Euros (US\$14.7) per day, the graduated charge based on the amount of pollution a car's engine produces.

Launched as a one-year trial, the charge targets the 89,000 vehicles that each day clogs the middle of the northern Italian city, where pollution readings often top European Union limits.

The charge is being billed as the first of its kind among European cities.

London, which took the lead when it introduced a flat-rate congestion charge in 2003, is preparing a pollution fee on lorries, buses and coaches entering its first "low-emission zone" from February 4th.

Other cities in Italy, home to motoring brands Fiat, Ferrari and Alfa Romeo, are taking steps to control smog stemming from one of the world's highest levels of car ownership. Northern cities Turin and Genoa are considering the introduction of a pollution fee for their city centers while Rome extended curbs on most-polluting vehicles from January 10th.

Most new cars are exempt from the charge, while the owners of older, larger engine cars will pay the highest rate.

24. Czech Government To Encourage Low-Emission Cars

The Czech government has approved changes to the structure of national road taxes aimed at pushing a more rapid penetration of cleaner cars into the national car fleet. The change is aimed mainly at businesses and requires parliamentary approval.

An existing exemption from road taxes for electric cars will be extended to vehicles powered by liquid petroleum gas, compressed natural gas or fuel blends with high biofuels content. Buyers of new cars will get a tax reduction of 48 per cent in the first three years and 40 per cent in the following three. Owners of cars over 18 years old will pay a 25 per cent premium.

"It's a strong economic impulse that should result in a change of car fleets into newer ones and those using alternative fuels," environment minister Martin Bursek said in a statement. The ministry said the measure would reduce particulate and carbon dioxide emissions.

Meanwhile according to Czech news service Aktualn, Mr. Bursek has announced plans for a surcharge to be put on the cost of all flights by government officials as a means of offsetting their carbon impact. The charge, which still requires government approval, could amount to CZK80 (E3.09) per ticket. The revenue would be invested in emission-cutting projects abroad.

25. Parking Could Cost More in Norwich If You Have A Long Car

Motorists in Norwich, England face a fresh set of rules linking the cost of parking outside their homes to the length of their cars. Owners of many family cars - including the Ford Focus, Renault Scenic and Vauxhall Vectra - will see the price of annual permits almost double as part of a move to encourage drivers to switch to small hatchbacks.

Norwich Council will be the first authority to link parking permit prices to vehicle length in a move which will raise millions of pounds in extra revenue. The Local Government Association said many other town halls were watching the experiment 'with great interest' with a view to copying the scheme.

A number of town halls are already penalizing drivers of 'gas-guzzling' larger cars by linking parking costs to vehicle emissions. But the Norwich scheme marks a change by charging according to the car's dimensions, with vehicles divided into three bands.

- Any car longer than 14ft 7in will be in the highest category, with the cost of an annual on-street parking permit rising from the current flat-fee of £16 to £30 - a 90 per cent hike.
- For the middle band of cars over 12ft 10in, fees will rise steeply to £22, while all smaller cars will enjoy a price freeze.

Norwich council defended the rules. Councilor Brian Morrey admitted the move would lead to a rise in revenue but insisted that was 'not the point' of the plan and the money would be ring-fenced for transport improvements. He said: "It is a deliberate attempt to push people towards owning smaller cars, which generally have lower emissions but also don't cause such problems with parking.

"Wherever we drew the line some cars were going to fall just the wrong side of it, but after lengthy discussions we decided these sizes were a good compromise."

A spokesman said permits would be issued based on car models using a detailed database of dimensions.

NORTH AMERICA

26. EPA Staff Says EPA Likely to Lose California Emissions Suit

The US Environmental Protection Agency staff believed it would lose a lawsuit filed by California if the agency denied the state's waiver request to toughen vehicle emissions standards to fight global warming according to documents released by the US Senate Environment and Public Works Committee. The suit the documents envisioned was filed on January 2nd, after the agency rejected the California petition. At least fifteen other states were poised to follow California's lead, if the waiver had been approved.

The documents accurately predicted what would happen next if the EPA rejected the waiver: The agency would face an "almost certain lawsuit by California." The EPA also said it was "likely to lose (the) suit." The federal appeals court in San Francisco has yet to issue a ruling.

If the EPA had granted the waiver, the documents said the agency would likely face a legal challenge from automakers. But the agency calculated it would almost certainly "win such a suit."

27. Air Toxics Study Shows 15 Percent Reduction in Cancer Risk

Air pollution programs have reduced Los Angeles' area residents' risk of cancer from toxic air pollution by at least 15 percent in the past seven years, according to a study released by the region's clean air agency. The study conducted by the South Coast Air Quality Management District (SCAQMD) and dubbed MATES III (Multiple Air Toxics Exposure Study) is the latest and most sophisticated air toxics research effort ever conducted in Southern California. Its chief findings are that:

- On average, Southland residents are exposed to a lifetime cancer risk from toxic air pollution of 1,200 in 1 million. That is a 15 percent reduction from the average risk estimated in SCAQMD's last air toxics study conducted in 1998-1999, but still one of the highest risks in the country;
- The highest computer-modeled risk level is in the port area with a maximum lifetime cancer risk of up to 2,900 in a million;

- Diesel exhaust accounts for approximately 84 percent of region-wide cancer risk and mobile sources -- including cars and trucks as well as ships, trains, aircraft and construction equipment -- account for 94 percent of the total risk; and
- Sites with higher levels of cancer risk due to air toxics include Burbank, downtown Los Angeles, Fontana, Huntington Park and Wilmington. The site with the lowest risk is Anaheim.

SCAQMD staff will now solicit public comments on the study for 90 days before finalizing the report. SCAQMD also will prepare an update to its Air Toxics Control Plan to include strategies for further reducing toxic air pollution and cancer risk based on its findings. The proposed plan will be presented to SCAQMD's Board this summer.

In 1998 and 1999 SCAQMD carried out MATES II, the most ambitious and far-reaching study at the time of toxic air pollution in an urban setting. Following MATES II, SCAQMD adopted numerous rules and incentive programs to reduce toxic emissions, including:

- AQMD's clean fleet rules, which have resulted in the purchase of hundreds of clean-fueled transit buses, school buses, refuse trucks, street sweepers and other vehicles;
- Regulations that have significantly reduced emissions of perchloroethylene ("perc") at dry cleaners and other industries; hexavalent chromium from metal plating shops and protected schools from toxic air pollutants from new sources;
- Collaboration with the ports of Los Angeles and Long Beach to establish the ports' Clean Air Action Plan, a landmark program to cut diesel emissions from ships, trucks, trains and other sources;
- Use of well over \$100 million in incentive funds to reduce diesel emissions from school buses, tug boats and trucks in the ports and other sources of diesel exhaust; and
- Adoption in January 2007 of SCAQMD's Mobile Source Fair Share Initiative, which led to introduction of the Marine Vessel Emissions Reduction Act in Congress last year. If approved, the measure would compel the U.S. Environmental Protection Agency to reduce toxic and smog-forming pollution from ships.

In addition to SCAQMD, regulations and programs instituted by the California Air Resources Board and the ports of Los Angeles and Long Beach have contributed to significant diesel emission reductions in recent years.

SCAQMD is the air pollution control agency for Orange County and major portions of Los Angeles, San Bernardino and Riverside counties.

28. Diesel Is Ranked Top Port Pollutant Across US

Diesel pollution, long identified as a health risk for Southern California port communities, is the top contributor to air quality problems in cities surrounding the nation's top 10 ports, a new study finds.² The study found that heavy-volume ports across the country face growing air quality problems tied to the processing and transportation of seaborne cargo.

² "U.S. Container Ports and Air Pollution: a Perfect Storm"

Authors looked at air quality programs in the port cities of Los Angeles-Long Beach, Oakland, New York-New Jersey, Houston, Seattle, Tacoma, Washington, Hampton Roads, Va., Charleston, S.C. and Savannah, Ga. Study author and Energy Futures President James Cannon made on-site research visits to each of the ports, which together handle about 80 percent of all U.S. imports. "The combination of growing U.S. port activity, the densely populated regions where most ports are located, and the prevailing onshore wind patterns that accumulate rather than disperse port air pollution create a 'perfect storm' of threats to public health," Cannon said.

Each step of the goods movement process today — from delivery of goods to ports and from there by truck or rail to U.S. consumers — is powered by diesel fuel. Burning diesel fuel releases health-threatening toxic air contaminants, smog-forming air pollution and climate-changing greenhouse gases.

Container ports are one of the fastest growing business sectors in the U.S., according to Energy Futures. Oceangoing container cargo ships make more than 10,000 visits annually to American ports. Container shipments rose 80 percent in the last decade alone, with nearly 45 million twenty-foot equivalent units (TEUs) of containers unloaded or loaded at U.S. marine ports in 2006.

Based on its research findings, Energy Futures has developed policy recommendations as the national debate about how to combat growing air pollution at U.S. ports intensifies. The report urges decision makers to:

- Promote the use of alternative fuels and advanced technologies to reduce air pollution and greenhouse gases,
- Develop and Implement a national port clean-up strategy at the federal government level,
- Create a national funding mechanism to finance comprehensive port clean-up,
- Advocate global environmental standards in the international arena, and
- Create a global clearinghouse of information about port clean-up efforts.

29. CASAC Urges Substantial Changes To New NAAQSs Risk Review Process

EPA's Clean Air Scientific Advisory Committee (CASAC) has issued consensus recommendations for changes they say EPA must make to its new air standards risk review process -- such as moving a statement of the range of policy options EPA is considering to the front of the review -- in order to maintain the scientific integrity of the process and ensure the panel is able to fulfill its statutory mandate.

The January 23rd comments are the latest in a series of exchanges between EPA and CASAC over the agency's revisions to the process for reviewing national ambient air quality standards (NAAQS), which Deputy Administrator Marcus Peacock initiated in December 2006. The consensus comments on the review process come in addition to parallel comments issued by individual CASAC members on the lead NAAQS advance notice of proposed rulemaking (ANPR), in which individuals cast a harsh light on what the agency did in the ANPR.

CASAC's comments describe the panel's unanimous dissatisfaction with the final phase of the new process, including the ANPR. The ANPR replaced the staff paper under the old review process. "[I]f such an ANPR were to be the benchmark for subsequent NAAQS review, the Agency would have failed in its responsibility to 'ensure that the best available science [will]

guide and inform Agency decision making' while adhering to the 'highest scientific standards,'" CASAC said, referring to Peacock's 2006 memo describing the new process.

CASAC says the "empty and regressive" ANPR for the lead NAAQS, which EPA issued on December 5th, lacked scientific foundations for the wide range of options it presented, and thus was "inadequate as a basis for rulemaking."

Instead of offering a scientifically-justified range for a new standard in the ANPR, the agency is taking comment on options that had been raised throughout the process, but were rejected by CASAC and EPA staff as scientifically indefensible. The options include the possibility of eliminating the lead standard altogether and using a disputed blood lead level to determine a safe exposure.

"[T]he ANPR solicited public comment on options for lead standard-setting that had already been considered in public advisory meetings and 'settled' (that is, dismissed on scientific grounds by both the CASAC and EPA staff) -- which serves only to undermine the scientific foundation of the NAAQS reviews," the letter says.

"It cannot be overstated that, in order to fulfill its Congressionally-mandated and thus legal role, the Committee needs to conduct a thorough and open evaluation of this 'best available science,' i.e., the scientific justification and underlying analyses of the various options for standard-setting that the Agency formerly presented in the Staff Paper -- which of course will now include the viewpoints of EPA management," the letter says.

Separate comments on the ANPR by individual CASAC members reveal a condemnation of what the members consider the hijacking of a scientific process.

- "It seem[s] apparent that the intent of the change in process imposed during the Lead NAAQS review has been to downgrade input and recommendations provided by CASAC and thereby diminish public health protection. It certainly leaves this panel member wondering why they are spending time providing any advice to the Administrator. Likewise, the current process serves to undermine the careful and considered deliberations of its own EPA staff," panel member Deborah Cory-Slechta said in January 22nd comments on the ANPR.
- "The ANPR for the NAAQS for Lead . . . is a severe disappointment and raises substantial questions regarding the viability of the revised NAAQS Review Process and the intent of the Agency to use this process to appropriately meet the requirements of the Clean Air Act," James Crapo said. "One is left to assume that the Agency plans to make a closed door decision on a final rule after the scientific and public review is completed, thereby ignoring their responsibility to conduct this process in a more open fashion and provide an advance notice of the agency's assessment of the scientific and public policy issues that will frame the final decision."
- Crapo also condemned the agency's move to take comment on the blood lead level, which many members considered settled. "CASAC noted that, although over the past three decades, ambient air exposures and therefore blood lead (blood Pb or PbB) concentration levels in the U.S. population have drastically declined (primarily due to the elimination of lead from gasoline), much more is now known about the adverse human health effects of even low levels of environmental lead exposure, and of corresponding PbB concentrations levels [less than] 10 micrograms/dl, particularly in children. Yet in

spite of this, EPA's ANPR effectively disregarded the CASAC's prior discussions and recommendations and reopened this issue," Crapo said.

30. US Expects Agreement This Year on Voluntary Global Goal to Cut Emissions

Countries participating in a U.S. effort to set a voluntary goal for cutting greenhouse gas emissions are moving toward consensus on an agreement by the end of 2008, according to James Connaughton, chairman of the White House Council on Environmental Quality. He told members of the House Energy and Commerce Subcommittee on Energy and Air Quality that upcoming meetings of major economic powers will lay the groundwork for setting a long-term goal of cutting global emissions by 2050.

Connaughton said significant progress on industry-specific targets would be part of the voluntary emissions-reduction effort the administration supports. The meetings will also include talks on setting mid-term goals for emissions cuts over the next few decades and begin designing the "architecture" needed to set industry-specific targets.

The U.S.-led process involves talks between 17 major global economies. It includes European Union member states and other developed nations, as well as nations with fast-developing economies such as China, India, and Brazil. The United States hosted the first Major Economies Meeting on Energy Security and Climate Change in Washington, D.C., September 27-28th, 2007.

31. Western Climate Initiative to Finalize Emissions Trading Scheme by August

Member states in the Western Climate Initiative expect to sign a memorandum of understanding by August on the design of a multi-sector regional greenhouse gas emissions cap-and-trade program, according to Janice Adair, special assistant for climate change at the Washington Department of Ecology. Then regulatory and legislative authorities from participating states could implement the initiative's program, Adair said.

Adair was speaking at the first public meeting of the Western Climate Initiative, which was formed in February 2007 in an effort to collectively cut greenhouse gas emissions in the region to 15 percent below 2005 levels by 2020. WCI members include Arizona, California, Montana, New Mexico, Oregon, Utah, Washington, and the Canadian provinces of British Columbia and Manitoba.

The regional group used the meeting to discuss five option papers that outlined a number of issues which need to be addressed in the cap-and-trade scheme. Another face-to-face meeting on the issue will be held on May 21st in Salt Lake City, with an additional meeting to be held near the end of July, after the draft plan is released, at a yet to be determined place and time.

32. Senator Feinstein Asks EPA IG To Review Denial Of State's Vehicle GHG Rules

Sen. Dianne Feinstein (D) is urging U.S. EPA's Office of Inspector General (IG) to conduct an "objective, thorough" investigation into Administrator Stephen Johnson's decision to deny the state a Clean Air Act waiver to implement first-time greenhouse gas (GHG) standards for automobiles. In a January 2nd letter to Deputy Inspector General Bill Roderick, the senator says although multiple agencies, courts and congressional committees will investigate the decision, the IG is "uniquely qualified to perform an objective, thorough analysis of the circumstances

under which this decision was made.” Feinstein’s letter demands an immediate launch of the investigation by Roderick, who is the acting IG at EPA.

Feinstein chairs the Senate appropriations subcommittee with responsibility for EPA’s budget, so her request could also represent the opening of a new front in investigations of the waiver denial, because other congressional reviews are being conducted by authorizing committees, the House oversight committee and the Senate environment committee.

The IG investigation could put new pressure on the administrator since the EPA IG has investigative powers not available to Congress, including the ability to seek out and interview any agency staff on an anonymous basis. That could make staff more willing to talk to the IG rather than at a public congressional hearing where they may fear reprisals for giving testimony that may contradict Johnson’s decision.

In her letter to Roderick, Feinstein asks the acting IG to describe EPA’s typical process for addressing waiver requests, the role of agency experts in the process, and to compare and contrast the process by which EPA rejected California’s waiver request with standard EPA decision-making methods. In addition, the senator demands that the IG address 14 other questions, including whether Johnson ceased consultations with EPA technical and legal staff before denying the waiver request; if the EPA administrator or his staff violated agency decision-making protocols or laws; and whether Johnson or his deputies discussed the GHG waiver with automobile industry and White House officials before issuing the denial.

In a January 2nd statement, Feinstein suggested the waiver denial was politically driven. “The thought has occurred that this was a political decision rather than an environmental decision. And that cannot be countenanced. Therefore, I urge the Inspector General’s office to objectively and quickly answer the questions raised in my letter.”

33. California To Make Key Regulatory Decisions Under Landmark AB 32

California officials in 2008 will be making critical regulatory decisions about what to include in their “scoping plan” for implementing the state’s landmark climate change law enacted a year ago, AB 32. The scoping plan, expected to be adopted in November, will contain a variety of emission standards, incentive programs and market-based measures affecting all major industry sectors in the state. Officials have scheduled several key workshops across the state in the coming months to help shape the plan, with a draft proposal expected to be unveiled in early summer.

The California Air Resources Board (CARB) is charged with developing and approving the scoping plan, and will be assisted by a variety of state agencies with authority over energy, waste, water, land-use, forests and agriculture. CARB officials have said they plan to concentrate the bulk of their regulatory efforts on the energy, water usage and transportation sectors. All the regulations, market measures and voluntary incentive programs that are included in the scoping plan are required to take effect no later than Jan. 1, 2012, according to AB 32.

With EPA’s December 19th rejection of CARB’s request for a Clean Air Act waiver to implement groundbreaking GHG emissions standards for automobiles in California, state officials are now under heightened pressure to add more GHG-reduction proposals for the transportation sector. Transportation measures already identified by CARB for consideration include a “feebate” program for vehicle purchases, a mandate that cars be made from a certain percentage of

recyclable materials to reduce emissions from manufacturing, and land-use guidelines for local governments to reduce vehicle miles traveled.

In addition to the transportation measures, CARB officials recently laid out a variety of actions they are considering pursuing in the scoping plan for the following categories: energy, business and industry, forests, agriculture and land use/local.

The energy sector is perhaps the most contentious category, with state officials struggling mightily to figure out how to set up emission caps on power plants and utilities, and a credit trading system that accounts for all power transactions and emissions that occur inside California and out-of-state. Recognition of this conundrum has recently led CARB and energy agency officials to consider dropping plans for a state-only, economy-wide cap-and-trade program, and instead wait to join the evolving Western Climate Initiative (WCI), which includes California, five other states and two Canadian provinces. WCI officials are expected to propose in August a multi-sector cap-and-trade program for the region.

The energy sector also includes water-related power use, such as the electricity it takes to pump and transport water around the state, and to treat water. These sources and facilities face fuel-switching and energy-efficiency measures in the scoping plan.

The business and industry sector includes cement plants, oil and gas systems, refineries, landfills and other waste management facilities, semiconductors, and “high global warming potential (GWP)” sources. The business and industry sources face a variety of energy efficiency measures, combustion standards and other process rules and incentive measures to reduce GHG emissions.

GWP sources include those that emit more intense greenhouse gases, such as sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs) and nitrous oxide (N₂O). Sources and products emitting these and more high-intensity gases facing new regulatory controls include: motor vehicle air conditioning systems; general stationary source refrigeration and air conditioning systems; foams; fire extinguishing; solvent cleaning; industrial applications; electrical transmission; as well as consumer products such as propellants.

State officials are reportedly less likely to apply direct regulations on the agriculture, forestry and waste sectors, instead planning a number of voluntary and market-based incentive programs to help spur implementation of GHG-reduction technologies and practices, which can in turn generate credits for these facilities and activities.

For the waste management sector, this means installation of advanced technologies to reduce methane and carbon dioxide from landfills, and to some degree turn these gases into energy and alternative fuels.

For forestry, planting more trees, increasing conservation of land, and developing fuels production from biomass are likely to be pursued through voluntary and incentive measures included in the scoping plan.

Regarding the agriculture sector, state officials are reportedly likely to call for voluntary and incentive programs to spur more installation of manure management technologies, such as anaerobic digesters that capture methane and N₂O and convert them into energy and biofuels. While state officials may consider some level of direct regulation on the agriculture industry, it is

likely this would be minimal, and the sector would be a significant source of surplus GHG emission-reduction credits.

In the land-use and local government category, state officials are eyeing measures to enhance and expand transit, spur urban infill development, require implementation of “smart-growth” planning, and increase use of green building design standards.

34. Canada Proposes Expanded Definition Of 'Low-Speed Vehicle'

On December 22nd, Transport Canada published proposed regulatory amendments to permit the sale in Canada of small, battery-powered, low-speed trucks as part of the government's overall effort to reduce greenhouse gas emissions. The proposed amendments to the Motor Vehicle Safety Regulations (Low-speed Vehicles) under the Motor Vehicle Safety Act would update the definition of "low-speed vehicle" to include small trucks, harmonizing Canada's approach with that in the United States, the department said in a regulatory impact analysis statement published with the amendments in the Canada Gazette, Part I.

While allowing the use of low-speed trucks for applications such as grounds-keeping and landscaping and in controlled industrial and institutional settings will help reduce fossil fuel consumption and the resulting greenhouse gas emissions, it is unclear whether the change will have a significant overall environmental impact, the impact statement said. "The replacement of smaller fossil fuel-powered trucks with low-speed vehicle trucks would be expected to improve local air quality, but overall environmental impacts depend on the energy sources used to generate the electricity used to recharge the low-speed vehicle power pack," it said.

A further minor revision to the definition of low-speed vehicle would replace current wording indicating that such vehicles must be zero-emission, with wording to indicate that such vehicles must not use fuel as an on-board source of energy, the impact analysis statement said. "This is in keeping with the original intent that a low-speed vehicle be an environmentally friendly electric vehicle," it said. "The current requirement may be interpreted too narrowly, and a vehicle could be disqualified as a low-speed vehicle because of emissions from the vehicle's tires or vapors escaping from the vehicle batteries."

35. Draft Canadian Regulations Would Extend Racing Exemption For Leaded Fuel

On December 22nd, Environment Canada published proposed regulations intended to extend an exemption to permit the import, production, and sale of leaded gasoline for use in racing vehicles. The proposed amendments to the Gasoline Regulations under the Canadian Environmental Protection Act would extend to January 1, 2009, the existing exemption that makes leaded gasoline available for racing vehicles, the department said in a regulatory impact analysis statement accompanying the draft regulations in the Canada Gazette, Part I.

"The proposed amendments would allow the continued use of leaded gasoline during the 2008 season, for which it is expected that racing events have already been planned, after which the government of Canada intends to allow the exemption to expire," it said.

The proposed amendments would remove regulatory provisions permitting the ongoing production, import, and sale of leaded gasoline for use in farm machinery, boats, and large trucks, based on evidence that leaded gasoline is no longer being used in those vehicles in Canada, it said.

The exemption for competition vehicles has been extended three times since the regulations were first put in place in 1994, in response to a consistent message from the racing industry that a broad transition to non-leaded fuels had not yet occurred and that allowing the exemption to expire would have a significant negative impact on the industry, related businesses, and local communities, the impact analysis statement said.

However, between 2002 and 2006, the volume of imported leaded gasoline for competition vehicles increased by 54 percent, while the latest scientific evidence suggests human health damage may occur at increasingly lower levels of exposure to lead, it said. "The racing industry continues to grow, and it is therefore expected that leaded gasoline use would increase over the period of a long-term or permanent exemption," it said. "It is reasonable to infer that vulnerable populations living near race tracks and/or attending racing events could be exposed to lead in the air and soil at levels that may be unsafe. For these reasons, a long-term or permanent exemption was rejected."

36. California Agency Presses EPA on Ship Exhaust

The Los Angeles-area air quality agency has petitioned the Environmental Protection Agency to immediately set tougher standards on global-warming pollutants for ocean vessels calling on US ports. If the EPA doesn't curb global warming pollutants within six months, the South Coast Air Quality Management District may sue the federal agency, said Barbara Baird, an attorney with the air quality district.

Baird said the air quality district can't protect 16 million Southern Californians in its jurisdiction unless the EPA changes federal standards on ships. The air district does not have jurisdiction over ships arriving at the ports of Los Angeles and Long Beach, which process more than 40 percent of consumer goods imported to the United States.

Air district board Chairman William Burke's letter to EPA Administrator Stephen Johnson said local and state efforts to curb greenhouse gas emissions are hindered by a lack of tough national standards on ship-generated emissions. The lack of regulation means ships are the only major pollution source in Southern California for which emissions are projected to increase, the air district said.

Baird said Thursday's petition is a prerequisite to any suit against the EPA. Globally, ships emit 3 percent of greenhouse gases, which is more than all but six individual countries, Baird said. The EPA in 1994 declared ships a significant contributor to air pollution, but the federal agency has not adopted any significant controls, Baird said. The EPA said last May it would delay until December 2009 adopting new ship regulations.

Last year, the air district sued the EPA to get the agency to regulate smog-forming emissions such as nitrogen oxides and sulfur oxides from ships.

The effort to cut greenhouse gases from ships is related to the efforts of the air district and other California agencies to cut all pollution at the ports. In 2006, the two ports adopted a plan striving to give all ships the ability to use shore-side electricity within five to 10 years, cutting the use of polluting ship fuel while docked. The Port of Long Beach will develop shore-side electricity for ships at 10 to 16 Long Beach berths within five years; the Port of Los Angeles will facilitate shore-side electricity for ships at 15 berths within five years, according to the plan.

37. NASA To Test Emissions of Synthetic Aviation Fuels

The National Aeronautics and Space Administration (NASA) is preparing to open a new laboratory to test the properties of synthetic aviation fuels, including fuels derived from coal and biological sources. An emissions profile of new fuels could be a key factor in decisions the military makes about what alternative fuels it adopts for use in its aircraft and other weapon systems, says a NASA scientist familiar with the project. The military is pushing hard to find alternatives to its current reliance on petroleum to fuel its forces, citing the spiraling cost of oil and a drive for national energy independence.

NASA is also undertaking the effort to help propel the commercial aviation sector to move toward adoption of alternative fuels.

The new alternative fuels laboratory should be operating by mid-2008, contingent upon the agency obtaining the necessary state permits, according to Dan Bulzan of NASA's Glenn Research Center in Ohio. The new research will evaluate all aspects of novel aviation fuels derived from non-petroleum sources to determine the emissions associated with their combustion.

The laboratory will test the fuels for emissions, including carbon dioxide (CO₂), and particulate matter releases, looking primarily at fuel combustion, and to a lesser degree at production processes. NASA will include the results in a database that will serve as a source of information for both military and civilian aircraft users, Bulzan says, and will be valuable for both DOD and airlines as they seek alternatives to traditional jet fuels, such as military JP-8 and standard Jet-A commercial fuel.

NASA's testing regime will complement research being undertaken by the Defense Advanced Research Projects Agency (DARPA), DOD's long-range research arm, which is seeking to develop biologically-based alternatives, or "surrogate," fuels to replace JP-8. Commercially-available biodiesel fuels do not yield enough energy for military applications, so DARPA is seeking higher-yielding fuels to reduce dependence on oil, under its BioJet program. The BioJet project is due to end in 2009, and should result in laboratory testing of a new surrogate fuel.

The launch of the research comes as the Air Force's synthetic fuel (synfuel) program is pushing to fulfill a self-imposed requirement to rely on synthetic fuel for half of all its domestic aviation fuel needs by 2016, while the Federal Aviation Administration (FAA) is also pushing to get commercial airliners certified to run on synthetic fuel under a program known as the Commercial Aviation Alternative Fuels Initiative (CAAFI). The Air Force and FAA programs should both benefit from the new NASA database, as they will be able to make better informed policy decisions about which fuels to promote, based on the relative merits and emissions profiles of each fuel.

Coal-derived fuels, which will form the early mainstay of the Air Force synfuel program, have been criticized by environmentalists for their high carbon footprint. However, the Air Force earlier this year announced a commitment to make sure any synfuel it purchases is more environmentally-friendly than conventional fuel.

At a meeting with reporters at the Pentagon, Air Force Assistant Secretary for Installations, Environment and Logistics William Anderson confirmed the service's drive for 'greener' coal-based fuels to supply the early phase of the synfuel program. However, he also reiterated an

earlier call by Air Force Secretary Michael Wynne to reduce the carbon emissions produced by synfuel by blending it with increasingly greater amounts of biologically-based fuels.

Also, NASA will test engines using various types of synthetic fuel. One such engine will be the super-efficient Ultra High Bypass unit being developed by Pratt and Whitney.

SOUTH AMERICA

38. Brazil Implements Mandatory Biodiesel Requirement

On January 1, Brazil began requiring that all diesel fuel contains 2 percent biofuels, in an effort to grow the market for the renewable, cleaner burning fuel, according to a spokeswoman for the National Petroleum Agency (ANP). The requirement to switch to B2 biodiesel--2 percent biofuels, usually a mix of vegetable oil and sugar-cane ethanol, and 98 percent standard diesel--was set down in a 2005 law. Although many gas stations began offering B2 biodiesel in 2007, all stations can now offer only B2 biodiesel. The alternative fuel, mainly used by trucks and buses, helps reduce carbon dioxide emissions and will reduce diesel import costs by \$410 million each year. Around 800 million liters (211 million gallons) of B2 biodiesel will be needed each year to meet the new fuel demands under the law; Brazil already has the capacity to produce 2.5 billion liters (660 million gallons) annually, the ANP spokeswoman said. Brazil also is considering making a B5 biodiesel--5 percent biofuels and 95 percent standard diesel--mandatory in 2010.

ASIA-PACIFIC

39. South Korea Issues Standards for Emissions, Fuel Economy

On January 9th, the Ministry of Environment announced that the rules supplementing the Air Quality Preservation Act were revised on December 31, 2007, to introduce new automotive emissions standards starting in January 1, 2009. At that time, new gasoline-powered cars will have to comply with California's fleet average emissions standards. As for diesel-engine vehicles, manufacturers and importers will have to meet the European Union's Euro V standard, the next-generation emissions standard planned for deployment in September 2009.

The revised rules also mandate an increase in emissions warranty periods from the current 160,000 kilometers (99,400 miles) for gasoline cars and 80,000 kilometers (49,700 miles) for diesel vehicles to a U.S. standard of 192,000 kilometers (120,000 miles) for gasoline cars and a European standard of 160,000 kilometers for diesel vehicles, also effective in January 2009.

Since the 1990s, South Korea has been upgrading its vehicle emissions standards every two years, and those standards have remained consistent with the most advanced standards in the European Union and the United States since 2000. All new gasoline cars and diesel vehicles are currently required to meet California's Ultra Low Emission Vehicle (ULEV) certification and Euro IV standards, respectively.

Next Exhaust Emission Standards of Diesel Vehicle

Vehicle Type	Category	CO (g/km)	HC+NOx (g/km)	NOx (g/km)	PM (g/km)	Test Method	Useful Life	Effective Date
PC		0.50	0.23	0.18	0.005	ECE-15+EUDC	10years/ 160,000km	2009.9 for new type a 2011.1 for all vehicle
LDT	RW<=1,305kg	0.50	0.23	0.18	0.005	ECE-15+EUDC	10years/ 160,000km	2010.9 for new type a 2012.1 for all vehicle
	1,305kg<RW<=1,760kg	0.63	0.30	0.24	0.005			
	RW>1,760kg	0.74	0.36	0.29	0.005			
		CO (g/kwh)	THC (g/kwh)	NOx (g/kwh)	PM (g/kwh)			
HDV	GVW>=3.5ton	1.5	0.46	2.0	0.02	ESC	10years/ 300,000km	2009.7 for new type a 2010.7 for all vehicle
		4.0	0.55	2.0	0.02	ETC		

Next Exhaust Emission Standards of Gasoline and LPG Vehicle

California's NMOG FAS will be applied from 2009.

-	-	2009	-	2010
-	NMOG(g/km)	0.024	-	0.022

Fleet Average Application Standard in Korea

	CO(g/km)	NMOG(g/km)	NOx(g/km)	HCHO(g/km)	Test Method	Useful Life
LEV*	2.13/2.63		0.047/0.056	0.031/0.044	0.0094/0.0112	FTP -75 10years/192,000km
ULEV	1.06/1.31		0.025/0.034	0.031/0.044	0.005/0.007	
SULEV	/0.625		/0.00625	/0.0125	/0.0025	
ZEV	0.0		0.0	0.0	0.0	

Remark *: LEV is only permitted for low volume manufacturer less than 10,000 vehicles.

Next Exhaust Emission Standards of Heavy Duty Vehicles using Gasoline and LPG

CO(g/kwh)	NMHC(g/kwh)	NOx(g/kwh)	CH4(g/kwh)	Test Mode	Useful Life	Effective Date
4.0	0.55	2.0	1.1	ETC	10years/200,000km	2009 for new type approval 2010 for all vehicle approval

Meanwhile, South Korea's two-year-old fuel economy regulation will go through a major overhaul under a separate plan announced January 7th by the Ministry of Commerce, Industry, and Energy (MOCIE). The plan calls for an increase in fuel economy standards from 12.4 kilometers per liter (29 miles per gallon) to 14.3 kilometers per liter (33.6 miles per gallon) for cars with engine capacity of 1,500 cubic centimeters or less, and from 9.6 kilometers per liter (22.6 miles per gallon) to 11.0 kilometers per liter (25.9 miles per gallon) for larger vehicles. The new standards will go into effect by 2012.

The existing fuel economy standards were first introduced in 2006.

South Korean officials said the country is becoming serious about cutting greenhouse gas emissions. According to the Environment Ministry, South Korea is the world's ninth largest carbon emissions producing country, but what alarms the government most is the pace of growth in the country's carbon emissions, which is the world's fastest.

The second biggest reason why South Korea is adopting the world's most advanced emissions standards for new vehicles is the importance of the automobile industry as the country's major export industry. South Korea's five automakers sold 2.85 million cars to the United States, Europe, and other world markets in 2007, according to the Korea Automobile Manufacturers Association. The government and the auto industry agree on the need to make cars consistent with the increasingly stringent environmental standards in Europe and the United States.

According to the Korea Automobile Manufacturers Association, 1.22 million domestically manufactured vehicles and 53,390 import cars were sold in South Korea.

40. Hong Kong Air Pollution Control Bill To Be Tabled Soon

The Air Pollution Control (Amendment) Bill 2008 will be tabled to lawmakers on February 20 to ensure a smooth, timely and transparent implementation of the emission caps for the power sector, the Environment Bureau says. The bill will stipulate the emission caps for sulfur dioxide, nitrogen oxides and respirable suspended particulates from local power plants in 2010 and beyond. It will also allow power plants to use emissions trading, including cross-boundary emissions trading with power plants in the Pearl River Delta Region, as an alternative for achieving the emission caps.

The bill will propose barring a public officer from serving as an appeal board member, to boost the appeal system's independence and impartiality. The provision in the Air Pollution Control Ordinance which enables the Director of Environmental Protection to refer an appeal board's decision for review by the Chief Executive in Council will be removed.

The bill will further underline the Government's commitment to achieving the 2010 emission-cut targets.

41. Air Quality Plan For Pearl River Delta Shows Mixed Progress

A joint program launched in 2002 to reduce air pollution in the heavily industrialized Pearl River Delta in southeastern China is on track to hit some, but not all, of its emission-reduction targets, environmental authorities in Hong Kong and China's Guangdong province said on January 8th in a review of the project. Using 1997 as a baseline, the Pearl River Delta Regional Air Quality Management Plan calls for the two sides to cut volatile organic compounds and suspended

particulate emissions by 55 percent by 2010, and to reduce sulfur dioxide and nitrogen oxide emissions by 40 and 20 percent, respectively.

In a mid-term review of the plan, the provincial and Hong Kong governments said Hong Kong's implementation of the steps it outlined to reduce pollutants, including raising fuel quality standards and phasing volatile organic compounds out of the manufacturing process, would enable the government to comfortably meet its emission-reduction goals.

But across the border in Guangdong, massive growth in the economy, population, and electricity consumption will lead to across-the-board increases in sulfur dioxide, nitrogen oxide, particulates, and volatile organic compound emissions levels, with nitrogen oxide emissions alone expected to grow by 570,000 metric tons by the end of the decade.

The governments tacitly admitted that the plan's initial pollution-fighting measures, which included the establishment of a joint task force and the development of a regional emissions inventory, were not enough to clear the air in rapidly developing Guangdong. The review calls for "additional control measures" to ensure Guangdong meets its 2010 goals, including the installation of nitrogen oxide removal technology at major power plants and new "cleaner production" and content rules for manufacturers that use volatile organic compounds in consumer products.

Guangdong authorities should also tighten emissions standards on the province's coal-fired plants and local ships, the report said.

The report said that if these measures are introduced, the provincial government should be able to slash sulfur dioxide, nitrogen oxide, suspended particulate, and volatile organic compound emissions over the next two years by 430,000, 500,000, 210,000 and 180,000 metric tons, respectively.

The review came just before Guangdong announced that pollution hit historic highs last year, according to a January 16th report by the official Xinhua news agency. Meteorological authorities said cities throughout the province reported an average of 75.7 hazy days in 2007, a "marked increase" from preceding years. Some cities, including Enping and Dongguan, saw more than 200 days of smog.

Xinhua quoted Wu Dui, an atmospheric studies expert at the provincial weather bureau, as saying it would take authorities at least two or three decades to get pollution in the province under control.

42. Delhi Government Creates "Air Ambience Fund"

The Delhi Government had some time ago decided to impose an environment fee on sale of diesel at 25 paisa per liter³ and use the fund for creating an "Air Ambience Fund" for promoting clean air policies in the city. The Delhi Pollution Control Committee has now issued directions for collection of such a fee through the Department of Trade and Taxes.

It has also issued directions to the Finance Department to create a separate "Air Ambience Fund" for depositing the amount levied as a fee on the sale of diesel in Delhi. The fund would be utilized for development and use of clean air technologies, waste management and such other

³ 100 paisa = 1 rupee

related activities that promote clean air policies so as to reduce air pollution, especially vehicular pollution in the city. This includes incentives to old vehicles and those running on not-so-clean fuels to convert to green fuels like CNG. The fund will be administered by the Secretary, Department of Environment, and Chairman, Delhi Pollution Control Committee, and all accounts would be maintained as per the procedures of the Delhi Government.

43. Silent Killers In The Air in Dhaka

The volume of poisonous particles in the air of Dhaka city has reached a dangerous level in recent years, going far beyond the permissible levels of human health. City dwellers are always at a serious health risk due to the highly-polluted air.



Faulty vehicles are a major source of air pollution in the city. Photo shows DoE officials measuring the emission of black smoke from a vehicle recently. Photo: STAR

The increasingly high concentration of toxic elements in the air is causing a foggy haze in the city sky this winter, according to the experts of Air Quality Management Project (AQMP) under the Department of Environment (DoE).

The AQMP, which has been monitoring the air quality of the city since 2002, has recently launched a website to inform the people about the air quality on daily basis. The website reveals that the air quality of the city is lethal for the human body especially during winter. The AQMP advised the city dwellers to stay indoors as much as possible during the winter to avoid health hazards from the pollution.

According to the website, poisonous carbon monoxide, sulfur dioxide, nitrogen dioxide, suspended particulate matter (PM10) and particulate matter (PM 2.5) exist in Dhaka's air beyond permissible levels for human health.

Due to increases of PM10 and PM2.5, people lose lung function and suffer from chronic respiratory and cardiovascular diseases while nitrogen dioxide increases risks of bronchitis and pneumonia. Nitrogen dioxide causes respiratory infection. Carbon monoxide reduces delivery of oxygen into the human body, creates severe headache and decreases visual perception and manual dexterity.

According to AQMP data, on December 26, 2004, Dhaka's air contained 131 micrograms PM10 in each cubic meter, which is dangerous for human health. The amount of PM2.5 was 233 micrograms in each cubic meter, which was also dangerous. On December 3, 2005, at least 261 micrograms of PM10 existed in each cubic meter of air, which is triple the permissible level. On December 30 the same year there was 275 micrograms of PM2.5 in each cubic meter of Dhaka's air. On December 31, 2006, PM10 was the dominating poison in the city's air which contained the highest 382 micrograms of the deadly particulate in each cubic meter. However, on December 31, 2007, the city air contained 282 micrograms of PM 2.5.

The permissible limit of PM10 is 65 micrograms per cubic meter and for PM2.5 it is 150 micrograms per cubic meter.

The implementation of the ban on two-stroke three-wheelers in 2003 made some temporary progress in reducing toxic elements from the air but has been marred by the functioning of old motorized vehicles and the brick kilns around the city.

Faulty vehicles are the largest source of air pollution. Diesel-run vehicles contribute about 60 per cent of such particles in the air, surveys of the AQMP reveal. At least 70 per cent of the diesel-run vehicles, mainly buses and trucks, are emitting toxic particles beyond the permissible limit.

The government banned running of buses more than 20 years old in the city but failed to keep those vehicles out of the city. Mohammad Nasiruddin, director of the AQMP, said: "Phasing out of the diesel-run old and faulty vehicles could reduce air pollution to half in the city."

44. New Taiwan Agency to Focus on Greenhouse Gases, Emissions Inventory

On January 10th, Taiwan's Environmental Protection Administration (TEPA) launched a new division to oversee governmental affairs pertaining to greenhouse gas emission-reduction policies, with a goal to establish a national platform for emission inventory for future trading of carbon dioxide.

TEPA Minister Winston Dang said at the opening ceremony that Taiwan, whose population accounts for only 0.3 percent of the global population, contributes nearly 1 percent of the world's greenhouse gas emissions. "We have to take the Bali Road Map, which asks developing countries to make measurable, reportable and verifiable mitigation actions, into account seriously," Dang said, referring to the agreement--reached by delegates in Bali, Indonesia, in December--to achieve a post-Kyoto Protocol framework by 2009.

Dang said the newly opened office would first establish a national platform for a greenhouse gas emissions inventory. In addition, Dang said, TEPA will continue to urge the legislature to approve in the next session a draft bill pertaining to greenhouse gas emissions reductions. The draft, sent to the legislature in September 2006, remains unapproved. "Without such a legal basis, it's very hard for us to take aggressive actions to curb greenhouse gas emissions," Dang said.

So far, TEPA has gained records for only 54 enterprises of major greenhouse gas emitters. Hsiao Hui-chuan, director general of TEPA's department of air quality protection and noise control, said that if the draft is passed by the legislature this year, TEPA would be able to add more than 300 local greenhouse gas emitting enterprises into the mandatory inventory platform within the next three years.

Yeh Huey-ching, director general of the Bureau of Energy under the Ministry of Economic Affairs, told a press conference on January 10th that, to effectively curb greenhouse gas emissions, Taiwan needs to pass another important bill, the Statute on the Development of Renewable Energy. A draft of the bill has been stuck in the legislature since 2002. The delay has caused a shortage of subsidies for purchased solar electricity, and could postpone a target set by the ministry to boost the product value of the renewable energy power generation industry to Taiwan New Dollars 35 billion (\$1.1 billion) by 2010.

45. Taiwan to Spend \$230 Million to Promote Use of LPG Vehicles

To reduce vehicle emissions and the country's dependence on petroleum, the Taiwan government will spend Taiwan New Dollars 7.572 billion (\$235 million) in the next five years to promote the use of dual-fuel vehicles that use liquefied petroleum gas (LPG), the Taiwan Environmental Protection Administration (TEPA) announced on January 16th. The policy is designed to significantly boost the number of LPG vehicles and stations by offering subsidies. LPG fuel is a mixture of propane and butane.

According to the project, the government will provide a TWD 25,000 (\$775) grant following the conversion of a new or used petrol vehicle to a LPG dual-fuel one. In addition, a TWD 25,000 commodity tax deduction will be granted for the purchase of a new LPG dual-fuel vehicle. In addition, the government will provide a subsidy of TWD 8.4 million (\$260,000) for the construction of each new LPG fuel station.

TEPA Minister Winston Dang told a press conference on January 16th that the project aims to have 150,000 LPG vehicles able to be fueled at 150 stations around the island. Currently, 12,000 LPG vehicles in Taiwan share only 20 stations.

According to the TEPA, 300,000 LPG vehicles in Japan share 1,900 stations. In Korea, 2.1 million LPG vehicles can be fueled at 1,400 stations. In Hong Kong, one of the most densely populated areas in the world, 1.8 million LPG vehicles share 40 stations.

To further encourage the LPG conversion, the government will offer users a subsidy of TWD 2 (\$0.06) per liter (\$0.23 per gallon) of LPG fuel. In Taiwan, the retail price for 95-octane unleaded gasoline is TWD 30.7 (\$1) per liter (\$3.79 per gallon), while that of LPG fuel is TWD 17.7 (\$0.55) per liter (\$2.08 per gallon). The government predicts that consumers will save TWD 54.24 billion (\$1.68 billion) on fuel costs due to the LPG conversion.

The 12,000 LPG vehicles currently on the road consume 100 million liters (26.4 million gallons) of LPG fuel per year, according to the TEPA. If the five-year goal to have 150,000 LPG vehicles is met, they will annually consume at least 1.25 billion liters of LPG (330 million gallons), reducing Taiwan's dependence on petroleum.

"The project will also lead to the reduction of 13,689 metric tons of carbon monoxide emission, 1.233 million metric tons of carbon dioxide emission, and others, in the following five years," Dang said.

46. Beijing Barely Meets Pollution Target For Year

Officials in China's capital Beijing said that clear skies on the last day of the year mean that Beijing has surpassed its air pollution target for 2007. On Monday December 31st, the city registered its 246th "blue sky day", beating by one its goal for the year. The news is a boost to officials, who face serious and ongoing concerns over air pollution levels in the metropolis.

International officials have voiced fears that poor air quality may affect athletes at the summer's Olympic Games. Earlier this year, Olympic chief Jacques Rogge said some events could be rescheduled if the air quality was not good enough. Since then, Chinese officials have been working to tackle the pollution with measures such as experimental no-car days.



Du Shaozhong, deputy director of the Municipal Bureau of Environmental Protection, told Xinhua news agency he was relieved. "We anticipated the last 'blue sky day' more than 10 days ago, but lingering fog and sandstorms frustrated us in the past week," he said.

In order to declare a "blue sky day", scientists measure the levels of three

air pollutants.

But, says the BBC's James Reynolds in Beijing, the government's cut-off point is fairly lenient. Days which count as "blue sky days" in the Chinese capital would count as polluted in other countries, he says. And, he adds, on the non-blue sky days it is hard to see more than 50 meters ahead.



Beijing authorities now plan to set a target of 256 "blue sky days" days for 2008.

The accomplishment means Beijing's air quality will have shown steady improvement for nine straight years. Last year, Beijing had 241 "blue sky" days. Beijing had more "blue sky" days in January, September, October and November 2007 than in the corresponding months last year, according to statistics compiled by the environment watchdog.

The capital launched a drive called "Defending the Blue Sky" in 1998, when it only had 100 days of fairly good air quality.

47. China Diesel Engines Sales Up 30%; Grab 80% Share

According to the China Association of Automobile Manufacturers (CAAM), diesel engine producers in China saw an average of 30% year-over-year growth in the first nine months of 2007, compared to first nine-months 2006. Diesel engines now have more than 80% market share in China for new commercial vehicles, a dramatic change from prior decades when China relied almost exclusively upon gasoline-powered truck engines.

China produced a total of 1.1 million trucks in the first 9 months of 2007, up 21% over the comparable 9 months of 2006. Beyond trucks, China also has produced 175,990 buses (up 19%), 354,236 truck chassis (up 37%), and 136,477 semi-trailers (up 121%) compared to nine-months 2006.

48. Beijing Introduces Cleaner Fuel Standards

China has introduced cleaner fuel standards in its capital Beijing, its latest effort to curb the city's notorious pollution ahead of the Olympic Games in August. Under the new standards, retailers will be required to supply gasoline and diesel equivalent to the Euro IV standard, with a maximum of 50 PPM sulfur.

A request has been sent to the State Council to allow Beijing to require new vehicles to meet Euro 4 standards but it has not yet been approved. Speculation is that it will be approved right after the Chinese New Year in early February and will likely go into effect by about March 1.

49. Beijing Power Plants To Slash NOx Emissions

All five power plants in Beijing are set to slash emissions in a bid to clean up the skies in time for the Olympic Games in August, local media have reported. The power plants, fueled mainly by coal, together provide a third of Beijing's electricity and all of its thermal energy.

Local media said the Huaneng Beijing Thermal Power Plant, 15 km east of downtown Beijing, has put in place a nitrogen oxide reduction system that will reduce its nitrogen oxide emissions by 75 percent, or 10,000 tons a year.

Nitrogen oxides are found mainly in industrial waste and car emissions.

Environmental experts told China Daily that nitrogen oxide density is not a major factor in the country's air quality indexes, but Beijing authorities seem determined to clean up the capital's skies so that athletes can breathe easy during the Games. (In fact, while NO₂ levels meet the relatively weak Chinese air quality standard, they consistently exceed the levels recommended by the World Health Organization.)

The Huaneng plant, which is located just 1 km from residential areas, provides about 10 percent of Beijing's daily electricity and is also the city's largest supplier of thermal energy. The capital's four other plants will also curb their nitrogen oxide emissions over the coming months, local newspapers reported.

The designers of the Huaneng plant told China Daily they have been working on 13 environment projects in the vicinity of the capital, including Hebei Province and Tianjin Municipality.

Two-thirds of Beijing's electricity comes from neighboring regions, including Shanxi Province and the Inner Mongolia Autonomous Region.

Beijing will almost definitely reduce the number of vehicles on its roads and suspend production at coal-burning power plants about two months before the start of the Games.

More than 1,000 gas stations in Beijing are also being retrofitted with vapor recovery systems.

50. Tokyo Reportedly Eyes Buying Carbon Credits From China

According to press reports, Japan is planning to buy up carbon credits yielded by its investments in emissions-cutting projects in China. The two governments agreed the deal and will formally sign it when President Hu Jintao visits Japan, probably in late March, the Yomiuri Shimbun said. Tokyo and Beijing will then select emissions-cutting projects to be funded by yen-denominated loans, the Yomiuri said.

A third of the projects funded by such loans since they began in 1980 have been environment-related, the paper said. For example, six projects agreed in the current Japanese financial year, which ends in March, could generate emissions reductions equivalent to 10 million to 15 million tons of carbon dioxide over the next five years, the paper said, citing a government estimate.

Japan is the only Asian country with an obligation under the UN's Kyoto Protocol to cut its emissions of greenhouse gases, but it has been lagging behind its commitment to a 6 percent cut from 1990 levels during the 2008-2012 period.

Tokyo late last year finalized a list of additional measures to cut roughly 35 to 36 million tons of carbon dioxide (CO₂), mainly by extra voluntary agreements with industries and more energy conservation. But it has also been looking abroad for credits generated under the Kyoto pact's Clean Development Mechanism, which allows rich polluters to pay for emissions reductions in developing nations in return for credits to put towards domestic quotas.

Last December, Japan agreed to buy credits from Hungary, and officials said it is also in talks with countries, including Poland, the Czech Republic and Ukraine, on similar deals.

51. Shanghai Air Quality Slowly Improves

Shanghai's air quality was slightly better last year but vehicle emissions remain a major pollutant, according to local environmental supervisors. There were 328 days with excellent or good air quality, four days more than 2006, but the overall amount air pollutants, mainly chemicals and particulates, was almost the same, they said.

"It's a difficult job to control the increase of pollutants while the city develops rapidly," Lin Chenyuan, a senior engineer of Shanghai Environmental Monitoring Center, said. If the city wants cleaner air, it needs to do more to reduce emissions from vehicles and industrial stacks, the center officials said.

Last year, the city government put stricter rules in place to cut emissions from industrial boilers, particularly at power plants. Overall, Shanghai plans to reduce its industrial emissions by 27 percent from 2006 to 2010. So far, the figure is just three percent. As of this year, Shanghai will require cleaner vehicles and has set up a special task force to measure vehicle emissions on the street.

Vehicles which emit toxic fumes account for over 80 percent of the city's air pollutants, according to the Shanghai Environmental Protection Bureau. However, the government acknowledged difficulties of eliminating these offending vehicles, particularly buses.

It has put measures in place to tackle the problem but it could take years for its efforts to pay off. Shanghai has more than 20,000 buses for public transport, half of which have been used for more than three years without being properly maintained, leading to the emission of toxic fumes, city officials said.

52. Air Pollution At Historic Highs In China's Guangdong

Air pollution in the southern Chinese province of Guangdong increased markedly last year, with 27 major cities and counties suffering a record number of hazy days, Xinhua news agency has said. China's industrial heartland of Guangdong, which borders Hong Kong, recorded an

average of 75.7 days of haze in 2007, the highest level since the government came to power in 1949 and a "marked increase" over normal years, according to a new report released by Guangdong's meteorological bureau.

The report found the industrial heartland of the Pearl River Delta, whose factories have powered China's export growth, fared the worst. Provincial black spots included Enping with 240 hazy days and Dongguan with 213, Xinhua added.

"It may take at least 20 or 30 years to bring the haze under control. Cities in the delta region should join in fighting air pollution instead of acting by themselves," Wu Dui, an atmospheric studies expert from the Guangdong Provincial Meteorological Bureau, was quoted by Xinhua as saying.

Neighboring Hong Kong has also grappled with chronic air pollution, partly from industrial smog blown in from Guangdong, but also from coal-fired power stations. The city's picturesque harbor is now regularly shrouded in thick smog, particularly during the winter months.

Hong Kong and Guangdong have committed to ambitious air-quality reduction targets by 2010, including cutting sulfur dioxide and suspended particulate emissions by upwards of 50 percent compared with 1997 levels. But green groups and scientists have expressed skepticism the targets will be met.

53. Guangdong To Boost Green Efforts

Guangdong will attach more importance to protecting the environment and saving energy during its industrial development, according to deputies to the ongoing provincial people's congress. "Guangdong saw its GDP soar 14.5 percent last year. However, we are under growing pressure because we must control per unit of GDP energy consumption," Li Miaojuan, director of the Guangdong provincial development and reform commission, said.

Euro III vehicle emission standards will be implemented in the Pearl River Delta to aid protection efforts, she said. "The standards will be implemented in Guangzhou on May 1, and then extended to the Pearl River Delta on July 1." "The whole province will have to observe the standard by the end of next year," Li said.

Several other measures will also be introduced, she added.

- For example, the commission is planning to close down all small thermal power plants and a number of cement and steel-making plants before the end of the year.
- Power plants with a generating capacity of more than 125,000 kW will also be desulfurized this year, she said.
- Also, due to the potential threat of a coal crisis, the province is speeding up construction of nuclear power and recycled energy sources.
- More plants will install online pollution surveillance systems, congress deputies said.

Li Qing, director of the Guangdong environmental protection bureau, said: "The air quality in the province last year was worse than in previous years." Discounting drought and other natural

factors, vehicle emissions are the main reason for the poor air quality. Deputies said they hoped the implementation of the Euro III standards will help improve the situation.

Li Qing said that the environmental protection authority has built up an air surveillance network that covers the whole of the Pearl River Delta and Hong Kong.

54. India Car Market Continues To Grow; More New Cars To Be Launched In 2008

Despite steep hike in oil prices and interest rates, the market for cars didn't show signs of slowing down in 2007; with Tata and Renault gearing up to woo the budget segment, and several luxury-class carmakers also eyeing the Indian market, the story looks to continue on the same line for 2008.

India remains one of the few markets in the world experiencing double digit growth as was seen in calendar 2007. Despite the dollar plummeting, prices virtually doubling for a barrel of crude and interest rates rising, the delay in automotive purchases didn't happen as strongly as many expected. Much of this can be laid down to the robust economy and the fact that Maruti Udyog really stepped on the gas with strong, focused offerings for the largest selling segments.

2008 will be remembered for the number of large hatchbacks expected from car makers—this sort of a car will proliferate considering the issues of road space, parking and median speeds. Skoda Fabia, the new Tata Indica X1, the Fiat Grande Punto (not to mention the Cinquecento and the Bravo coming in as CBUs), the Suzuki A-Star and possibly the Mazda2 (from Ford) could spark major interest and growth in this segment. When one factors in the possible moves of Toyota and Honda in this category, major action is unwinding in this segment.

Diesel made bold strides in 2007 and will continue to do so in 2008. The issue which really clouds things rests solely with the government and its inaction. The authorities haven't kept pace on the technological front where refineries are concerned (low sulfur content diesel is still needed).

55. Four Wheels for the Masses: The \$2,500 Car

The TATA company has kept its new vehicle under wraps, but interviews with suppliers and others involved in its construction reveal some of its cost-cutting engineering secrets — including a hollowed out steering-wheel shaft, a trunk with space for a briefcase and a rear-mounted engine not much more powerful than a high-end riding mower.

Even so, the “People’s Car” (now officially named the Nano) may ultimately affect what many people drive around the world, since it is part of a broader trend among carmakers to try to build less expensive cars.

The French-Japanese alliance Renault-Nissan and the Indian-Japanese joint venture Maruti Suzuki are also trying to figure out how to make ultra-cheap cars for India. And struggling Western automakers are looking to see where the cost-obsessed ethos of the developing world can help their bottom line. In the most recent example, Ford was expected to announce that it would make India its manufacturing hub for low-cost cars.

Some analysts are predicting that just as the Japanese popularized kanban (just in time) and kaizen (continuous improvement), Indians could export a kind of “Gandhian engineering,” combining irreverence for conventional ways of thinking with a frugality born of scarcity. Or, as

Indian auto executive Ashok K. Taneja describes the philosophy, “When I need silver, why am I investing in gold?”



The car is a tiny, charming, four-door, five-seater hatchback shaped like a jelly bean, small in the front and broad in the back, the better to reduce wind resistance and permit a cheaper engine.

Driving the cost-cutting were Tata’s engineers, who in an earlier project questioned whether their trucks really needed all four brake pads or could make do with three. As they built Tata’s new car, for about half the price of the next-cheapest Indian alternative, their guiding

philosophy was: Do we really need that?

The model has no radio, no power steering, no power windows, no air-conditioning and one windshield wiper instead of two, according to suppliers and Tata’s own statements. Bucking prevailing habits, the car lacks a tachometer and uses an analog rather than digital speedometer.

Frugal engineering pervades the car’s internal machinery, too, with even greater implications for the vehicle’s safety and longevity. To save \$10, Tata engineers redesigned the suspension to eliminate actuators in the headlights, the levelers that adjust the angle of the beam depending on how the car is loaded. In lieu of the solid steel beam that typically connects steering wheels to axles, one supplier reportedly used a hollow tube.

Tata chose wheel bearings that are strong enough to drive the car up to 45 miles an hour, but they will wear quickly above that speed; the car’s top speed is 75 miles an hour.

Reducing the weight curbed material costs and enabled the company to use a cheaper engine. People familiar with the car describe a \$700 rear-mounted engine built by the German company Bosch, measuring 600 to 660 cubic centimeters, with a horsepower in the range of 30 to 35.

Critics of the Tata car have asked how a car that prunes thousands of dollars off regular prices can possibly comply with safety and environmental norms. The answer may be that the car comes at a particular moment in India’s development, when the country is affluent enough to support strong demand for automobiles but still less regulated than developed countries. Tata officials say the car will comply with all Indian norms.

56. Delhi To Curb Diesel Pollution

The Delhi government has announced plans to cut diesel emissions in the national capital region in the wake of strong public concerns about rising numbers of diesel vehicles and diesel related pollutants in the city's ambient air. The plan recently approved by the Cabinet proposes an Environment Cess (or tax) on diesel fuel. The revenue from this cess will be used to create a fund to finance Delhi's clean air action plan. Delhi Chief Minister Sheila Dikshit has also written to the Union government to introduce Euro IV diesel fuels and standards in the National Capital Region by 2008-09.

Simultaneously, the city government targets to phase out light duty commercial vehicles on diesel, organize pollution checks on incoming traffic at the city borders and enforce the bypassing of incoming trucks to Delhi. Financial incentives will be provided to vehicle owners interested in converting to CNG.

This announcement comes soon after the Centre for Science and Environment's (CSE) warning that even Euro III diesel cars spew several times more toxics than their petrol versions. CSE had based its study on actual emissions data available from the Automotive Research Association of India. Stating that one diesel car is equal to 7.5 petrol cars in terms of emissions of particulate matter, and three petrol cars in terms of nitrogen oxide emissions, it had stated that air toxins from a diesel car were also harmful and carcinogenic.

According to a Times of India report, "In a bid to deal with air pollution due to diesel without banning diesel cars, Delhi Chief Minister (CM) Sheila Dikshit sees the shift to diesel with a low sulfur content of 50 ppm as a viable solution. "To make this possible, the CM has also written to Union Petroleum Minister Murli Deora seeking diesel with 50 ppm levels for the city and the National Capital Region . . . With the number of diesel cars shooting up in the Capital, the 350 ppm level is already sending the pollution levels up in Delhi, senior government officials said.

"With all these concerns in view, the government is now examining the possibility of shifting to diesel of 50-ppm sulfur level for diesel vehicles in Delhi by the end of December 2008. This, however, would mean overhauling the whole system in coordination with the automobile manufacturers and oil companies. Meanwhile, the Delhi government is also planning to discuss with the Centre ways of dealing with pollution caused by the 40,000 commercial vehicles entering Delhi."

One possible solution to the commercial truck pollution: put ULSD retail pumps "along the highway and making these commercial vehicles compliant to the new diesel by doing some retrofitting with the cooperation of the owners of these vehicles," the report said.

57. Indonesia Plans New Vehicle Standards

Indonesia will step up efforts to adopt tougher vehicle standards according to government officials. Indonesia adopted the Euro 2 fuel emission standard in 2005 under Regulation No. 141/2003 and has pledged to upgrade to the Euro 4 standard by 2012.

Critics say the adoption of the European Union emission standards has been hampered by the failure of the oil companies to introduce cleaner gasoline and low sulfur diesel fuel, as automakers are reluctant to launch environment-friendly vehicles without the fuels being readily available.

Nevertheless, by 2012 all new cars in operation in Indonesia must have engines that are compatible with the Euro 4 standard, the spokesman reportedly said.

As of 2006, there were about 8.2 million passenger cars, 4.9 million trucks, 2.9 million buses, and 38 million motorcycles across the country. The vehicles contributed more than 10 percent of the country's total carbon emissions, according to the Environment Ministry.

58. Taiwan Plans Phase-out of Two-Stroke Motorcycles

On January 7th, Taiwan's Environmental Protection Administration (TEPA) announced that it will spend New Taiwan Dollar 580 million (\$17.9 million) in the next three years to promote the obsolescence of motorcycles with two-stroke engines. A scooter rider who gives up a two-stroke motorcycle will be rewarded NTD1,500 (\$46). According to TEPA, the level of concentration of hydrocarbons emitted by the two-stroke is eight times more than the four-stroke version. The project will focus primarily on Kaohsiung and Pingtung counties, where 68 percent of the 2.5 million on-road motorcycles have two-stroke engines, contributing 32 percent of the hydrocarbon emissions from mobile sources in the region. "It's urgent to phase out such polluters. We estimate that 1.07 million two-stroke motorcycles in the region have been used for more than a decade. The project might result in the phase-out of roughly 350,000 obsolete ones," TEPA Minister Winston Dang told a press conference. According to TEPA, phasing out a two-stroke motorcycle will lead to a reduction in carbon dioxide emissions of 418.5 kilograms (922.6 pounds) in Kaohsiung City and Kaohsiung County, and 372 kilograms (820.1 pounds) in Pingtung County.

MIDDLE EAST

59. Renault to Develop Electric Cars For Israel

The Renault-Nissan alliance has signed a deal to begin mass producing electric cars as part of an Israeli-led project to develop alternative energy sources and slash oil dependency. Renault-Nissan Chief Executive Carlos Ghosn said the cars, with a range of about 100 km in city driving and up to 160 km on the highway, will accelerate from zero to 100 kph in 13 seconds and have a top speed of 110 kph -- similar to many gasoline-powered cars.

Ghosn said a key reason why the company chose Israel to launch the project is because 90 percent of Israelis drive less than 70 km a day and all major urban centers are within 150 km of each other. For Israel the cars would mean less dependency on oil imports, mostly coming from Russia.

The cars, to be made in Europe, will run on a battery developed by Nissan and Japan's NEC and will be available in 2011. A prototype is already on the road in Israel and various models will be sold by Renault and Nissan.

Ghosn said Renault-Nissan will also market the cars in yet to be determined European countries and Asia and later to the United States. He said the car would cost the same or less than comparable gasoline engine autos and would have a lifetime warranty.

Israel's government will offer tax incentives on the cars and Project Better Place, a venture-backed company, will set up a recharging grid using electricity from renewable sources. Project Better Place is headed by former SAP executive Shai Agassi, who said Israel's grid would be powered by 200 megawatts generated by wind and solar power sources.

"For the first time in history, all the conditions necessary for electric vehicles to be successfully mass-marketed will be brought together in a partnership between the Renault-Nissan Alliance and Project Better Place in Israel," the two sides said in a statement. Consumers will buy their car and subscribe to an energy supply, including the use of the battery, on the basis of kilometers driven, similar to the way mobile phones are sold.

California-based Project Better Place said it will set up a network of 500,000 charging points in Israel. The car's computer will indicate when recharging is needed and the nearest charging point.

The initial \$200 million investment in Project Better Place is led by holding company Israel Corp and includes investment bank Morgan Stanley, venture capital firm Vantage Point and a group of private investors. Israel Corp, which will invest \$100 million, said it had signed agreements with the other investors. The Ofer family, which controls Israel Corp, will invest \$30 million through a private firm while the other investors will put in \$70 million.

Renault said that the new Israeli initiative represents "the first time in history" that government and private sector firms have brought together "all conditions necessary for electric vehicles to be successfully mass-marketed."

Renault plans to market a new midsize vehicle powered with lithium-ion batteries and estimated initial sales at 10,000-20,000 units annually. The company said driving performance of the no-emission cars will be similar to that of conventional vehicles with a 1.6 liter gasoline engine.

Renault is developing a system of exchangeable batteries, which it says would allow continuous mobility after stops at an exchange station. Consumers will buy and own their car and then subscribe to an energy package, which will include the use of batteries, on a kilometer-driven basis.

Tax breaks on the purchase of low-emission vehicles are expected to provide a strong incentive to consumers. Buyers of battery-powered Renault-Nissan vehicles will pay a 10 percent purchase tax, as compared to the standard 79 percent tax on all other new vehicles. Battery-powered vehicles also will be exempt from a new emissions-based registration tax on new vehicles, which Israel's Finance Ministry approved in mid-January.

Project backers say the combination of purchase price tax incentives and cheaper fuel ensures that "the total cost of ownership for the customer will be significantly lower than that of a fuel-based car, over the life cycle of the vehicle."

Israel is optimistic that the electric car program will reduce both its dependence on imported oil as well as its environmental footprint. On January 21st, Olmert predicted that the government could seek to eliminate all gasoline-powered vehicles by 2020.

60. Israel 'Clean Air Act' To Give Cities More Power To Reduce Vehicle Pollution

During a recent conference on car pollution, the mayors of Tel Aviv and Holon complained that they lacked the authority to take action and fight the phenomenon. One participant, MK Dov Khenin, heard their call and hopes to pass a law that will for the first time give local authorities the power to prevent pollution.

As talk over introducing a "clean air" bill has entered its final stages, Khenin has assumed a central role in the Knesset's Internal Affairs and Environment Committee. He has decided to separate a number of clauses from the main bill and fast-track them as separate laws by reforming existing legislation.

Car pollution is a leading cause of illnesses in Israel, more than pollution caused by factories or power stations.

Khenin's proposed changes, that now face second and third readings, states that each local council with over 30,000 inhabitants will draw up a long-term plan to reduce car pollution through administration and traffic regulation in its jurisdiction. The plan will be based upon expert opinions, examining how a reduction in air and car pollution and a rerouting of traffic will affect the populace. Thus, local authorities will be able to ban pollutant cars or cars in general from entering certain areas. Its inspectors will be given broad authority to prevent certain vehicles from entering an area. The reform will allow local authorities to impose bans on entry of vehicles within its jurisdiction only if a parallel plan to improve public transportation in the said area has been implemented. Public transportation using environmentally friendly technology will be given preference. Money raised by fines will be channeled toward a fund encouraging development of public transportation.

One of the key methods to reduce the number of cars - a congestion toll - is not included in Khenin's reforms. "Congestion charges are not part of the reforms because we have not reach an agreement over providing substitutes for cars," Khenin explained. "I, for one, demanded more lanes be set apart for public transportation and that the fees be allocated to improving it."

At the same time as Khenin is pushing his reforms, the clean air bill is reaching the final stretch. The bill will require the government to formulate a national plan to reduce air pollution and impose air pollution quotas for factories. According to Tzipi Isar-Itzik, lawyer for the Israel Union for Environmental Defense, the reform is important but cannot be fully realized without passing the clean air bill. "This law will require the Minister of Environmental Protection to declare pollution-plagued areas, and then local authorities will have to take action and battle pollution," she said.

61. 'Air Pollution Must Be Reduced To Minimize Asthma'

Asthma costs the economy about NIS 1 billion a year, according to MK Dov Khenin, who spoke at a special session of the Knesset Labor, Social Affairs and Health Committee. The figure was based on research carried out by the BDO company.

Khenin said that the respiratory disease was a serious problem that demanded serious attention from the health authorities, as well as from those responsible for environmental protection, as asthma was worsened and is sometimes triggered by air pollution. Dirty air especially affected children and the elderly, so it should be reduced immediately to minimize harm to the population, the MK said.

The costs to the economy include hospitalization, medications, medical treatment in clinics and more indirect costs such as loss of work days, deaths of asthma patients and additional diseases that result from asthma, he said.

During the committee discussion, Khenin proposed establishing a national council for asthma and other respiratory diseases to advise the Health Ministry on how to cope with them and

develop a comprehensive strategy for dealing with them. He noted that there are already national councils for diabetes, cancer and other major diseases. In addition, Khenin said that a number of medications that can prevent asthma attacks are available but not included in the basket of health services provided by the health funds. This prevents many patients from getting them, he said.

Khenin also recommended that asthma be added to the list of chronic diseases (health indicators) that are monitored by the health funds among their members and reported to the ministry so that they will have an incentive to treat and prevent it.

62. Kuwait & Japan Focusing On ULSD From Heavy Crude Oil

The 9th Japan-Kuwait joint symposium kicked off recently at the Petroleum Research and Studies Center in Ahmadi. The event was jointly organized by the Kuwait Institute for Scientific Research (KISR), Kuwait National Petroleum Company (KNPC), Japan Cooperation Center, Petroleum (JCCP) and the Japan Petroleum Institute (JPI). The symposium split into two segments; the first one “Catalyst in Petroleum Refining: Hydroprocessing and Hydrocracking of Heavy Oil,” and the second one “Research and Development Applications on Fuel Cells and Hydrogen Production Technology”. Speaking at the opening ceremony, Sa’ad Al-Sa’ad, Deputy Chairman and Managing Director of KNPC, said the symposium is a result of sustained efforts and the organizers’ keenness to exchange ideas.

Talking about the Kuwait refinery industry, Al-Sa’ad said “over the past three decades, KNPC modernized and expanded its refineries to a total capacity of around 9,000 bbl/day. Furthermore, KNPC is working on increasing its refining capacity to over 1.4 million bbl/day within the next 4 to 5 years and accommodate part of the heavier crude oil produced from Kuwait’s oil fields. As part of these plans, construction of a new refinery with a capacity of 615,000 bpd is in process of a bid evaluation and finalization stage. In addition, plans are being made to expand and modernize KNPC’s existing refineries, namely MAA and MAB. These plans aim at producing high quality products that meet environmental regulations and the stringent product specifications of 2020. The main product of the new refinery will be low sulfur fuel oil for use in Kuwait power plants. It will be a clean and environment-friendly fuel and will minimize pollutants from power plants.

“Other products that are considered for the clean fuel project are also important as a step change in the product slate of KNPC refining complex, not only reducing fuel oil yield from about 22 percent to 5 percent but also producing high quality products, including the ultra low sulfur diesel of 10 ppm sulfur,” he added. “Technical data and information concerning the processability of heavier crudes is needed for the current refinery as well as the new refinery. Latest technologies, in areas of process design, catalytic conversion, reactor and equipment design and others are important to ensure an efficient and reliable refinery,” noted Al-Sa’ad. He said the subject of the joint seminar is of direct relevance to the developments of hydrotreating heavier feedstocks and looks forward to benefit from the experience of colleagues from Japan refining industry in the area of heavy oil hydrotreating.

For his part, Director General of Kuwait Institute for Scientific Research (KISR) Dr Naji Al-Mutairi said, “Over the past 15 years KISR and Japan Petroleum Institute (JPI) and Japan Cooperation Center, Petroleum (JCCP) have been working together to develop relations between the state of Kuwait and Japan in the scientific field. This scientific and technical cooperation was concentrated on petroleum, which is one of the most important resources of the state of Kuwait, as well as an essential energy source for Japan.

“Kuwait refining industry is expected to process heavy crude oils produced from Kuwaiti oil fields with lower API gravity and higher sulfur content than Kuwait Export Crude. Developing a sound strategy to deal with such heavy crude oils requires attaining detailed technical information on the characteristics of such crude as well as its processability. Accordingly, the current symposium addresses important background information on how to process heavy crudes using catalyst systems. Several techniques will be presented such as: Hydrotreating, Hydrocracking and others that help to increase the life cycle of catalysts.”

63. Iranian Refinery To Produce Airplane Fuel From Kerosene, Upgrade To Low Sulfur

Speaking to reporters recently, Shahabeddin Motaji, Managing director of Tehran Oil Refinery Company, described recent achievements and noted, "This system can turn kerosene into airplane fuel." Listing his affiliated company's achievements, he referred to quality improvement of Tehran Refinery products, reiterating, "In order to produce higher quality premium gasoline we have installed an isomerization facility at the refinery." He said, "This 120 million euro project was clicked at the beginning of the current (Iranian) year (1386 - began on March 21, 2007), and it will be put to use in mid-fall of 2009."

Motaji added, "Our other new project is production of sulfur-free gas-oil that would enable Tehran Oil Refinery to produce this product for newly manufactured passenger cars that operate on sulfur-free gas-oil, in addition to the inter-city and road busses, for which we already produce low sulfur oil-gas.

He said that production of sulfur-free kerosene, too, is proceeding in order to lower the pollution of that product's usage, adding, "The two above mentioned projects that have been executed on a 320 million euro budget would be operative in 30 months time from now."

64. Bapco Inaugurates Euro-5 ULSD Refinery

On December 6th, Bahrain's Bapco officially inaugurated production of Euro-5 (10-ppm maximum sulfur) diesel fuel at its 250,000 barrels/day crude refinery. The event was attended by 500 VIP guests including Prime Minister Shaikh Khalifa bin Salman Al Khalifa, members of the Bahraini parliament, international ambassadors and dignitaries and the CEOs of Bahraini and international firms.

The plant aims at reducing the sulfur contents in the diesel produced by Bapco, from 0.7 ppm to less than 0.001ppm, or less than 10 parts per million. This will ensure sustained and competitive sale of diesel in the global market and enhance the future of the company as a pioneering refiner at world level.

As a true multinational facility, the new plant saw specialist suppliers and contractors from Belgium and the USA join in partnership with Bapco while the construction process has been completed in cooperation with Japan's JGC Corporation, which is recognized as a world leader in delivering solutions for oil and gas production. JGC's speciality is the optimization of the entire project, from development planning to plant construction and operation and maintenance (O&M), contributing to maximum investment efficiency from a life cycle perspective as well as business implementation.

The cornerstone of the new complex is the two-stage hydrocracker which is one of the largest single-train hydrocrackers in the world. This will give Bapco the capability to produce up to 100,000 barrels per day of ultra-low sulfur diesel to the most stringent international standards of fewer than 10 parts per million of sulfur emissions. Low sulfur diesel will increase the yield of more valuable refinery products, with incremental annual revenue expected to exceed \$300m, which amounts to a return on investment of over 30%.

AFRICA

65. Diesel Demand Up In South Africa

Demand for diesel in South Africa surged by 12% in 2007, mainly driven by stronger economic growth and diesel hungry open-cycle gas-turbine (OGCT) plants, the South African Petroleum Industry Association (SAPIA) said. These plants are used for supplementing electricity generation during peak hours.

The demand for all petroleum products in 2007 was 25.8 billion liters - a 6% increase over 2006. The increase in demand was mainly driven by Diesel 12.5%, Bitumen 6.4%, Jet Fuel 5.6%, LPG 5 % and Petrol 2.5%. Products that experienced negative growth in 2007 were Illuminating Paraffin -5.6% and Heavy Fuel Oil -1.3%.

In the fourth quarter of 2007, petrol sales were flat when compared to the corresponding period in 2006 due to petrol price increases. Jet fuel demand increased by 4.9% and LPG increased by 7.1% in fourth quarter 2007 when compared to the corresponding period in 2006.

By the fourth quarter of 2007, the percentage split of petrol sales between Unleaded Petrol (ULP) and Lead Replacement Petrol (LRP) stood at 60% ULP to 40% LRP, compared with a 56% ULP and 44% LRP split in the first quarter of the year, indicating a growing increase in the penetration of ULP, SAPIA said.

66. Zambia: Reduce Air Pollution, Chinese Firm Urged

KABWE Town Clerk, Vivian Chikoti, has ordered a Chinese manganese firm to seek lasting mechanisms that will reduce air pollution posing a health hazard to residents of Makululu and Mutwewansofu townships. Ms Chikoti, who toured Chimani Manufacturing Company, was shocked to see the amount of fumes being released from the plant and also noted that Zambian workers were working without protective clothing.

"It is unacceptable to see the amount of uncontrolled pollution being let out on our residents in Makululu and Mutwewansofu townships. I cannot understand how the Environmental Council of Zambia (ECZ) could certify this plant to operate under such a situation," Ms Chikoti said.

The town clerk, who was flanked by Kabwe Mayor Jerry Chama, has since summoned management from the Chinese firm for a meeting.

Ms Chikoti warned that if the company failed to take corrective measures immediately, relevant authorities would move in and shut the plant. "We closed this firm some time last year and management assured us that they will do a good job by procuring proper equipment that would lessen pollution but it seems like the problem has just been worsened.

"It is also unacceptable to see that most Zambian workers have not been provided with protective clothing despite working in a hazardous environment like that," Ms Chikoti said. The workers have no gumboots as well as proper uniforms and they complained of being paid slave wages despite the amount of work they put in. The firm has employed about 100 Zambian workers.

And Mr. Chama said in as much as the Government encouraged foreign investors to operate in Zambia, it was important that they followed laid down labor laws. Mr. Chama said Kabwe yearned for proper investment for development to take root. "The investment this company has put up is very good for the development of our town but our colleagues should also try by all the means to ensure that our people are working under a conducive environment," Mr. Chama said.

In response, Chiman Manufacturing Company production manager, Zeng Xiang Liu, assured the town clerk that his firm would take corrective measures to address the issue of pollution. Mr. Zeng who was at pains to explain his situation argued that the amount of fumes had reduced compared to the previous time. He argued that the weather pattern where there was too much wind caused the smoke to blow towards the two townships but such was not the case all the times.

GENERAL

67. Environmental Solutions to Drive Economy Across Globe, Worldwatch Reports

Responses to climate change, water shortage, fossil fuel dependency, and other environmental concerns will drive the global economy in 2008 as businesses eye them for growth and profit, the Worldwatch Institute said in a report released on January 9th. Economic opportunities directly tied to environmental issues are attracting capital around the world, according to the report, "State of the World 2008: Innovations for a Sustainable Economy".

"Once regarded as irrelevant to economic activity, environmental problems are drastically rewriting the rules for business, investors, and consumers, affecting over \$100 billion in annual capital flows," said Gary Gardner and Tom Prugh, the report's co-directors.

That is because the ecological systems that underpin the global economy, notably fisheries, oil reserves, and water supplies, are collapsing and driving businesses to adapt their strategies and investments to a changing environment

The report said an estimated \$52 billion was invested in renewable energy in 2006, whereas carbon trading reached an estimated \$30 billion in 2006, nearly triple the amount traded in 2005.

It cites the creation of 575 environmental and energy hedge funds in the last few years as further examples of "dramatic change" in the way businesses are thinking about global economy.

The report lays out the case for a sustainable economy by citing how large corporations such as General Electric are tapping into the economic potential of developing environmental solutions. Jeff Inmelt, the chief executive officer of General Electric, launched an "ecoimagination" campaign to promote the company's high-efficiency locomotives and jet engines, wind turbines, solar power technologies, water purification systems, and cleaner coal generating equipment.

"This is not because he is a do-gooder, but because he believes that these markets offer the prospect of high growth and high margins," Daniel Esty, Yale University's environmental law and policy professor, wrote in the foreword to the report.

Likewise, Esty said REC in Norway has emerged as a leading producer of photovoltaic panels with a market capitalization in excess of \$17 billion.

"As society steps up to a wide range of pollution control and natural resource management challenges--and commits substantial resources to finding those solutions--there will be significant opportunities for those who can bring solutions to bear," said Esty, who also heads Yale University's Center for Business and Law and the Yale Center for Environmental Law and Policy.

Christopher Flavin, Worldwatch Institute president, said the era of conventional market economics is over because of scarce resources. From falling water tables to soaring oil prices and collapsing fisheries, the ecological systems that underpin the global economy are under extraordinary stress, Flavin said. Consequently, Flavin said, "We should be practicing a sustainable approach to economics that takes advantage of the ability of markets to allocate scarce resources while explicitly recognizing that our economy is dependent on the broader ecosystem that contains it."

In its State of the World report for 2007, the Worldwatch Institute emphasized that cities will play a key role in both causing and addressing climate change. In addition, the report said, cities would serve as testing grounds for innovative responses to environmental problems, with urban community groups and governments serving as "pioneers."

68. Rapid Ice Loss Observed in West Antarctica

The loss of ice sheets throughout West Antarctica has accelerated during the past decade or so, declining 59 percent between 1996 and 2006, according to a study published Jan. 13th in the online Nature Geoscience journal⁴.

The rapid loss of ice in the western part of the continent has mostly been caused by increasing "glacial discharge"--the movement of giant Antarctic glaciers from the continent's interior to its coast, according to the study. As glaciers move out to sea, they cause a collapse in surrounding ice sheets, with the melting water continuing to erode ice long after the glaciers have disappeared, the study said.

For the study, researchers measured the loss of ice on the continent using climate models that compare the seasonal decline of ice in warmer months to gains made from snowfall during cooler months. That and other data are obtained from satellite images.

More than 90 percent of Antarctica is covered by ice. A continued decline of glaciers and ice on the continent concerns many climate scientists who worry that it would probably accelerate already rising sea levels that could threaten coastlines around the world.

In West Antarctica, glacier movements along the Bellingshausen and Amundsen seas resulted in a 59 percent loss in ice sheets in the western part of the continent between 1996 and 2006, the study said. In the Antarctic Peninsula, which juts northward from the continent toward South

⁴ "Recent Antarctic Ice Mass Loss From Radar Interferometry and Regional Climate Modeling"

America, ice sheets have declined more than double that rate over the same 10-year period, the study said.

The more dramatic loss of ice in the Antarctic Peninsula was less surprising to scientists because such losses have been well-documented in the region. Potential declines in the ice in West Antarctica have, by contrast, received far less attention by researchers. Together, West Antarctica and the Antarctic Peninsula shed about 193 billion tons of ice in 2006 alone, the study said.

Scientists have been monitoring losses in Antarctic ice more closely since early 2002 when a mass of ice larger than Rhode Island, known as the Larsen B ice shelf and located along the eastern side of the Antarctic Peninsula, collapsed into the sea.

Climate scientists once predicted that increased global warming might increase precipitation and snowfall in Antarctica's interior, thus compensating for much of the decline in glaciers and sea ice.

"Climate warming may increase snowfall in the continent's interior but [will also] enhance glacier discharge at the coast where warmer air and ocean temperatures" join to carve away coastal ice shelves, the study said.

In a series of 2007 reports, the United Nations Intergovernmental Panel on Climate Change (IPCC) warned of an inevitable rise in sea levels and global temperatures triggered by increasing greenhouse gas emissions this century. The IPCC predicted in its February 2007 report that global sea levels will rise between 7 inches and 23 inches by 2100 but could rise even more if there is a rapid loss of ice in Greenland and Antarctica.

A 2006 study by University of Colorado at Boulder researchers concluded that global warming is reducing the Antarctic ice sheet by as much as 36 cubic miles of ice a year, suggesting the buildup of snow in the interior of the continent was not keeping pace with the loss of ice along the continent's edge.

69. J.D. Power Reports Diesel Light-Vehicle Demand Shifting From EU

Annual growth of diesel light-vehicle demand in Eastern Europe, Asia and North America combined is projected to surpass growth in Western Europe by the early part of the next decade, according to the J.D. Power and Associates Automotive Forecasting Global Diesel Light-Vehicle Forecast.

"In the short term, it will continue to be Europe -- primarily Western Europe -- that will provide almost one-half of the growth in demand for diesel light vehicles globally," said Al Bedwell, senior manager at J.D. Power Automotive Forecasting. "While this remains a very significant portion, it is worth bearing in mind that average growth in Europe during the past four years was 62 percent. We are now entering a period when Europe will become less critical as a driver of growth in global diesel light-vehicle demand. In terms of absolute demand, however, Europe will still remain the most dominant region throughout the next decade."

According to the report, by 2017, North America and Asia combined will account for 45 percent of global annual demand for diesel light vehicles, compared with just 25 percent in 2007.

With the exception of Brazil, all of the world's significant personal vehicle markets are now technically open to diesel vehicles, although some markets impose emission limits and/or fiscal and regulatory frameworks that make the sale of diesel vehicles economically unviable. The increasing tendency to connect vehicle taxation to fuel efficiency and CO2 performance is also seen as a driver of diesel vehicle demand.

Global demand for light vehicles is expected to grow from 66 million units in 2007 to 92 million by 2017. Demand for diesel-powered light-vehicles is projected to increase from 16 million to 29 million during the same period, resulting in an increase in market share from 23.6 percent in 2007 to 31.5 percent by 2017.

Regional Highlights

- Western Europe
 - Overall growth in diesel vehicle demand in Western Europe has passed its peak. Annual increases in regional diesel share will be modest between 2008 and 2010, with slight declines likely in the years that follow.
- Central and Eastern Europe
 - Penetration of diesel-powered vehicles among new-vehicle sales in the Central and Eastern European regions in 2007 remained mixed, varying from less than 10 percent in Russia (although diesel demand in the Russian urban market is beginning to stir) to 50 percent in Turkey.
 - Excluding Russia and Ukraine, the region has experienced considerable growth in diesel vehicle demand in recent years, increasing from 19 percent in 2002 to 42 percent in 2007.
- North America
 - In response to strict tailpipe emissions limits, high fuel prices and a growing awareness of greenhouse gas issues among both consumers and policy makers, rising demand for both diesel cars and light trucks is forecast for the North America market.
 - Many manufacturers now have firm plans to enter the U.S. diesel market, which is projected to lead to a significant rise in diesel light-vehicle penetration, from 3 percent in 2007 to 14 percent by 2017.
- South America
 - Brazil's increasing commitment to ethanol as a fuel type for passenger vehicles will limit diesel prospects in South America's largest vehicle market. Nevertheless, diesel light-vehicle penetration rates are climbing in other markets in the region, particularly those strongly influenced by European auto makers.
- Asia
 - Asia's largest light-vehicle markets, China and Japan, have very low current levels of diesel vehicle sales. The advent of clean diesel may lead to a rise in demand in Japan. China includes diesel on its list of carbon-reducing

technologies for personal transport and already has a large diesel light-vehicle market.

- Diesel penetration rates in the total Asian light-vehicle market are predicted to increase by 10 percent by 2017.

70. Alternative Fuels Coming To Aircraft

Airbus has tested gas-to-liquid fuels on a superjumbo A380 in the first flight of a commercial aircraft using the potential alternative to regular jet fuel. Airbus conducted the trial flight with Rolls-Royce Group PLC, whose Trent 900 engines power the double-decker A380 used for the trip, manufacturers said at a briefing. Royal Dutch Shell provided fuel for the flight, which didn't carry passengers.

The double-decker A380 needed no modification to use the GTL, which was designed to be mixed with regular jet fuel so the airplane "does not know the difference," Airbus said. Airbus hopes the plane will become the centerpiece of efforts to develop the next generation of cleaner fuel at a time when the aviation industry is under pressure over the effects of emissions on the climate.

The fuel used, a mix of 60% standard jet kerosene and 40% GTL, was used in one of the A380's four engines.

GTL plants use natural gas, rather than crude oil, to make fuel that contains virtually no sulfur. Airbus predicts that about 25 percent of fuel used in aviation will come from alternative sources by 2025.

Airbus is competing with The Boeing Co. to develop alternative fuels. Virgin Atlantic Airways will conduct a biofuels test later this month with a Boeing 747. The plane will fly from London to Amsterdam, Netherlands, without passengers in a joint project with Chicago-based Boeing and engine maker General Electric.

The Shell International Petroleum Co. unit participated in the Airbus test flight, a three-hour trip between Filton, where the plane maker has a wing factory, and Toulouse. The crew will provide assessments, and data will be analyzed over the next few weeks. Airbus plans to present results in several months.

71. Emissions Concerns Rise Over Ships; IMO Makes Progress

The dirty air caused by the noxious exhaust tied to the delivery of goods by ships around the world has mostly escaped public attention. Now, with ocean shipping on the rise, efforts are under way to restrict the type of fuel cargo vessels can burn and to bring their emissions down.

The International Council on Clean Transportation sounded the alarm in a study released last spring. It concluded that so-called bunker fuel used by container and other cargo ships is emitting more sulfur dioxide than the world's cars, trucks and buses combined, a fact first reported in the Wall Street Journal two months ago. The study also found that bunker fuel burned in ships is responsible for one-fourth of the world's nitrogen dioxide pollution or smog.

Bunker fuel comes from the dregs of the oil refining process. It has the consistency of mud, contains toxic metals like lead and vanadium, is cheaper to burn than low sulfur fuels, and

packs enough energy to drive the huge cargo ship engines. As such, it serves a dual purpose: fuel of choice for the shipping industry, and useful way to get rid of the sludge remains of oil refinery tanks after their crude oil has been processed.

There are no global rules requiring ships to burn higher-grade fuel and thereby diminish the environmental and health problems associated with bunker fuel. But the International Maritime Organization, the United Nations agency that controls shipping regulations, has been holding hearings aimed at setting standards that would reduce the use of bunker fuel.

However, the American Petroleum Institute, which represents the U.S. oil industry, conducted a study last year that said enactment of strict marine fuel regulations to reduce sulfur emissions “would have far-reaching impact on the global refining industry and oil consumers.” The API study said it would require an estimated \$126 billion over the next 13 years to create enough refining capacity to meet the higher-grade fuel needs of the marine shipping industry, and that the consequence could be reduced emissions for ships but a net increase in carbon dioxide released into the atmosphere from the new and expanded refineries. (This estimate does not account for any improved efficiencies that could be introduced on the ships themselves.)

Some port cities are addressing the problem in order to keep up with the growth of ocean shipping, which now accounts for 90 percent of the volume of goods transported between ports and countries. In California, Los Angeles and Long Beach, America’s two largest ports, require cargo ships to switch from bunker fuel to cleaner fuel when they are within 24 miles of the coast. The Baltic Sea region in Europe has a similar rule, and the U.S. Environmental Protection Agency reports it may force ships to switch to a higher-grade fuel or install technology to scrub the toxic grit from emissions when ships are close to shore.

Ship owners complain that it is expensive and cumbersome to switch back and forth from low-grade to cleaner fuel in order to meet local port regulations. They also say it is less efficient, adding further to the cost of shipping goods by sea. They would prefer an international solution.

International maritime organization (IMO) officials finalized a set of proposals to tighten air pollution rules for international shipping at a meeting in London in February. The changes will be put to the body's marine environment protection committee (MEPC) in the first week of April, and finalized in October

The IMO's sub-committee on bulk liquids and gases narrowed down six different proposals to reduce sulfur oxide (SOx) emissions to three options, which the IMO stresses could all still be modified by MEPC⁵. The options are:

- To significantly tighten the current global cap on sulfur content in fuel;
- To maintain the current global cap but significantly tighten limits in designated emission control areas (SECAs); or
- To moderately lower both the global cap and SECA limits. The last option would also introduce "micro-emission control areas" with even stricter controls than in SECAs.

The first option envisages a 1.0 percent (10,000 ppm) sulfur cap in 2012 dropping to 0.5 per cent (5,000 ppm) from 2015. The second foresees a 0.1 per cent (1,000 ppm) cap in SECAs from 2012. The third suggests a global cap of 3 per cent (30,000 ppm) from 2012, a SECA cap

⁵ Fuel sulfur standards were adopted by IMO in 1997, ratified in 2004 and went into effect in 2005. These standards placed a cap on fuel sulfur levels at 4.5% (ie, 45,000 ppm) even though the existing average global level was 2.7%.

of 1.0 percent (10,000 ppm) in 2010 dropping to 0.5 per cent (5,000) from 2015 and micro-emission control areas with a 0.1 per cent (1,000 ppm) standard.

All options would require "significant changes" in fuel refinery output across the world, the IMO acknowledges. It does not explicitly back either a global switch to low-sulfur marine diesel or scrubbers to meet the new sulfur limits. The committee has decided not to recommend emission trading to reduce SOx emissions.

The committee also proposed a three-tier system to cut nitrogen oxide (NOx) emissions from new engines, with tougher goals than in previous versions. Emissions would be cut by between 16 and 22 per cent by 2011 relative to 2000, and by 80 per cent by 2016. The longer-term limit would only apply in specially designated areas, however. The standards would effectively require selective catalytic reduction (SCR) technology on all new marine engines. Not to exceed provisions or load caps were added to assure that SCR systems would be functional during the critical operations near land.

There was no agreement on proposed NOx standards for existing engines because of "insufficient information and studies" to inform the decision, reports the IMO. However, the possibility of individual ports imposing retrofit requirements is still possible.

72. Ship Air Pollution Death Toll "Could Be Halved"

Using cleaner marine fuel could prevent tens of thousands of premature deaths caused each year by air pollution from shipping, according to scientists in a new study submitted to the International Maritime Organization (IMO) by Friends of the Earth. The researchers say heart and lung disease caused by air pollution from international shipping will cause over 80,000 premature deaths by 2012. At least half of these could be avoided by switching to low-sulfur marine fuels, they claim. Low-sulfur fuels emit less particulate matter, a major cause of illness.

The US-based Clean air task force (CATF), which released the new study, estimates the 40-50,000 lives saved annually would benefit society by up to US\$275bn (E188bn) per year.

73. Daimler Launches Next Generation Commercial Vehicles

Daimler has launched its 'Shaping Future Transportation' initiative by showcasing 16 trucks and buses featuring alternative drive systems and fuel sources. Daimler, which has already demonstrated the effectiveness of biodiesel and compressed natural gas (CNG) in its Mercedes-Benz commercial vehicles over the past ten years, views hydrated vegetable oil-derived fuels (HVOs) and biomass-to-liquid (BTL) fuels as the most promising renewable fuels in the near future. Hybrid technology and natural gas will also play a key role, according to Daimler, which has delivered over 1,500 hybrid buses and trucks together with 1,500 natural-gas-powered vehicles. "The Shaping Future Transportation" initiative demonstrates that environmentally-friendly commercial vehicles from Daimler are no longer prototypes, but real vehicles that are being used by customers," said Andreas Renschler, Head of Daimler Trucks Division. Daimler claims to have the world's largest fleet of "environmentally-friendly" commercial vehicles in use.

Other vehicles from Freightliner, Mitsubishi Fuso, Orion and Thomas Built Buses have also been exhibited at the Mercedes-Benz Museum in Stuttgart. Hybrid technology plays a key role in these vehicles, reducing diesel consumption up to 30 percent in some trucks and buses, depending on the application. Because of their decreased fuel consumption, trucks and buses

equipped with hybrid drives also produce fewer pollutants and less CO₂. Daimler plans to employ alternative drive systems in additional vehicle models and regions, focusing primarily on hybrids. In North America, Freightliner will manufacture 1,500 M2 hybrid trucks over the next three years and also produce a hybrid version of its Thomas-Built school bus.

Meanwhile, the second-generation Mitsubishi Fuso Aero Star hybrid will be launched this year in Japan. In Europe, the first Mercedes-Benz Atego BlueTec hybrid trucks will be delivered to customers in Germany, France, and the Czech Republic next year. At the same time, customers in the United Kingdom will be conducting a pilot project with ten Mitsubishi Fuso Canter Eco Hybrids. For public transportation needs, Daimler unveiled a three-axle articulated Mercedes-Benz bus with the designation Citaro G Blue Tec Hybrid, which will go into series production in 2009.

Daimler's conventional diesel engines have also continued to evolve in terms of reduced emissions and increased energy efficiency and are expected to remain part of the company's production plans for the foreseeable future. Emissions of particulates and nitrogen oxides have decreased by more than 90 percent on average since 1990. Mercedes-Benz BlueTec diesel technology has led to substantial reductions in fuel consumption for its trucks and buses. In the case of long-haul trucks, for example, the annual reduction amounts to around 2,000 liters of fuel per vehicle or more than five tons of CO₂ emissions per year compared to previous generation trucks.

Daimler has decided to use a parallel hybrid engine design for its advanced trucks. In parallel systems, the electric motor is incorporated into the power train, where it works in parallel with the diesel engine to propel the vehicle. However, Daimler's hybrid buses are equipped with a serial hybrid drive, where a generator directly connected to the diesel engine provides the energy for the electric motors. In addition, all of the auxiliary systems of the Mitsubishi Fuso and Mercedes-Benz hybrid buses are electrically powered, which makes completely electrical and emission-free driving possible for short stretches.

The technological transition to a zero-emission vehicle is being ushered in by the Mercedes-Benz Citaro G BlueTec Hybrid, which employs an innovative drive concept featuring wheel-hub motors. In principle, future generations of the vehicle will need only to replace the diesel-engine generator with fuel cells, as the electric drive components have already been tried and tested.

Fuel cell vehicles have already proved their suitability for day-to-day operations in a test that involved 30 Mercedes-Benz Citaro buses. The vehicles were driven more than two million kilometers in over 125,000 hours of operation. However, the fuel cells' service life needs to be substantially lengthened and their cost drastically reduced before they can be used in mass-produced commercial vehicles.

74. New Studies Add To Doubts Over Biofuels

Further evidence has emerged on the potentially damaging environmental effects of promoting biofuels consumption. Studies published recently in the journal *Science* recommend that waste biomass and biomass grown on abandoned farmland be prioritized for biofuels production.

One study⁶, by the US Nature Conservancy, noted that increasing energy use, climate change, and carbon dioxide (CO₂) emissions from fossil fuels make switching to low-carbon fuels a high priority. Biofuels are a potential low-carbon energy source, but whether biofuels offer carbon savings depends on how they are produced. Converting rainforests, peatlands, savannas, or grasslands to produce food-based biofuels in Brazil, Southeast Asia, and the United States creates a 'biofuels carbon debt' by releasing 17 to 420 times more CO₂ than the annual greenhouse gas (GHG) reductions these biofuels provide by displacing fossil fuels. In contrast, biofuels made from waste biomass or from biomass grown on abandoned agricultural lands planted with perennials incur little or no carbon debt and offer immediate and sustained GHG advantages.

A second study⁷, by the US German Marshall Fund, says previous biofuels impact studies have found that substituting biofuels for gasoline will reduce greenhouse gases because biofuels sequester carbon through the growth of the feedstock. These analyses have failed to count the carbon emissions that occur as farmers worldwide respond to higher prices and convert forest and grassland to new cropland to replace the grain (or cropland) diverted to biofuels. Using a worldwide agricultural model to estimate emissions from land use change, the authors found that corn-based ethanol, instead of producing a 20% savings, nearly doubles greenhouse emissions over 30 years and increases greenhouse gases for 167 years. Biofuels from switchgrass, if grown on U.S. corn lands, increase emissions by 50%. This result raises concerns about large biofuels mandates and highlights the value of using waste products.

75. Carbon Capture Strategy Could Lead To Emission-free Cars

Researchers at the Georgia Institute of Technology have developed a strategy to capture, store and eventually recycle carbon from vehicles to prevent the pollutant from finding its way from a car tailpipe into the atmosphere⁸. Georgia Tech researchers envision a zero emission car, and a transportation system completely free of fossil fuels.

Technologies to capture carbon dioxide emissions from large-scale sources such as power plants have recently gained some impressive scientific ground, but nearly two-thirds of global carbon emissions are created by much smaller polluters — automobiles, transportation vehicles and distributed industrial power generation applications (e.g., diesel power generators). The Georgia Tech team's goal is to create a sustainable transportation system that uses a liquid fuel and traps the carbon emission in the vehicle for later processing at a fueling station. The carbon would then be shuttled back to a processing plant where it could be transformed into liquid fuel.

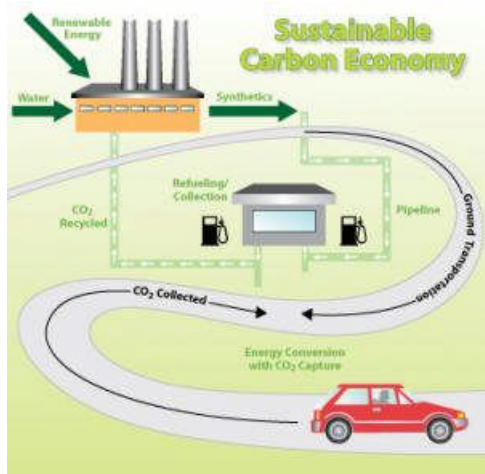
⁶ "Land Clearing and the Biofuel Carbon Debt", Joseph Fargione 1, Jason Hill 2, David Tilman 3*, Stephen Polasky 2, Peter Hawthorne 3, 1 The Nature Conservancy, 1101 West River Parkway, Suite 200, Minneapolis, MN 55415, USA., 2 Department of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN 55108, USA.; Department of Applied Economics, University of Minnesota, St. Paul, MN 55108, USA., 3 Department of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN 55108, USA.

⁷ "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land Use Change", Timothy Searchinger 1*, Ralph Heimlich 2, R. A. Houghton 3, Fengxia Dong 4, Amani Elobeid 4, Jacinto Fabiosa 4, Simla Tokgoz 4, Dermot Hayes 4, Tun-Hsiang Yu 4, 1 Woodrow Wilson School, Princeton University, Princeton, NJ, USA. German Marshall Fund of the U.S., Georgetown Environmental Law and Policy Institute., 2 Agricultural Conservation Economics, Laurel, MD, USA., 3 Woods Hole Research Center, Falmouth, MA, USA., 4 Center for Agricultural and Rural Development, Iowa State University, Ames, IA, USA.

⁸ Georgia Institute of Technology (2008, February 11), "Carbon Capture Strategy Could Lead To Emission-free Cars", ScienceDaily, Retrieved February 12, 2008, from <http://www.sciencedaily.com/releases/2008/02/080211134444.htm>

Currently, Georgia Tech researchers are developing a fuel processing device to separate the carbon and store it in the vehicle in liquid form.

Georgia Tech's near-future strategy involves capturing carbon emissions from conventional (fossil) liquid hydrocarbon-fueled vehicles with an onboard fuel processor designed to separate the hydrogen in the fuel from the carbon. Hydrogen is then used to power the vehicle, while the carbon is stored on board the vehicle in a liquid form until it is disposed at a refueling station. It is then transported to a centralized site to be sequestered in a permanent location currently under investigation by scientists, such as geological formations, under the oceans or in solid carbonate form.



In the long-term strategy, the carbon dioxide will be recycled forming a closed-loop system, involving synthesis of high energy density liquid fuel suitable for the transportation sector.

Georgia Tech researchers envision a zero emission car, and a transportation system completely free of fossil fuels. (Credit: Image courtesy of Georgia Institute of Technology)

The research was published in Energy Conversion and Management. The research was funded by NASA, the U.S. Department of Defense NDSEG Fellowship Program and Georgia Tech's CEO (Creating Energy Options) Program.

76. Study Says Carbon Dioxide Pollution Kills Hundreds a Year

Climate-warming carbon dioxide spewed by coal-fired power plants and fossil-fueled vehicles has been causing hundreds of premature US deaths each year over several decades, a new study reported. The deaths were due to lung and heart ailments linked to ozone and polluting particles in the air, which are spurred by carbon dioxide that comes from human activities, according to the study's author, Mark Jacobson of Stanford University.

As the planet warms due to carbon dioxide emissions, the annual death rate is forecast to climb, with premature deaths in the United States from human-generated carbon dioxide expected to hit 1,000 a year when the global temperature has risen by 1.8 degrees F (1 degree C). When the planet gets that hot, which could happen this century, the world annual death rate is estimated to rise to 21,600, according to Jacobson.

Earth has warmed about 1.4 degrees F (0.8 degrees C) in the last 150 years, with most of that gain in the last three decades. Jacobson said about 700 to 800 US annual deaths in the most recent years can be attributed to human-caused carbon emissions.

Greenhouse gas pollution has spurred the global warming that is resulting in a damaging rise in the sea level, droughts and possibly more severe storms this century. This is the first time a scientist has specifically linked one human-generated greenhouse gas to human mortality.

Carbon dioxide is one of several greenhouse gases blamed for climate change, but it is the one humans have the most ability to control through regulation of activities that burn fossil fuels like coal and oil. It is also emitted by natural processes.

Using a complex computer model and data on carbon emissions from the US Environmental Protection Agency, Jacobson found the impact was worse in places that are populous and polluted. "Of the additional ... deaths per year due to ozone and particles ... about 30 percent of those occurred in California, which has 12 percent of the (US) population," he said, noting that California has six of the 10 most polluted US cities. "So it was pretty clear ... that climate change was affecting Californians' health disproportionately to its population," Jacobson said.

What happens in California is important, since this populous state has long been a testing ground for US pollution regulation.

Jacobson's study, to be published in *Geophysical Research Letters*, was released soon after the US Environmental Protection Agency rejected a bid by California and 15 other states to let them set higher standards for carbon emissions from cars, trucks and SUVs than the federal government does.

Jacobson's research was not available before the EPA's decision on December 19th, but the EPA's rejection made points that Jacobson said are addressed by his study. In turning down the states' request, EPA argued that California did not have a special circumstance warranting this change, that there were no studies isolating carbon dioxide's effects and none looking at health impacts. "It's actually occurring right now, it's been occurring for the past 20 to 30 years," Jacobson said of the deaths related directly to human-generated carbon dioxide emissions.

He noted, however, that the deaths due to carbon dioxide are only a small fraction of annual premature deaths caused by air pollution overall: an estimated 50,000 to 100,000 in the United States and between 1.5 million to 2 million worldwide.

77. Some Biofuels Are Worse Environmentally Than Fossil Fuels, Analysis Shows

Biofuels can reduce greenhouse-gas emissions in comparison to fossil fuels. However, Smithsonian researchers highlight a new study that factors in environmental costs of biofuels production; in this regard, corn, soy and sugarcane come up short. The authors urge governments to be far more selective about which biofuels they support, as not all are more environmentally friendly than fossil fuels.

Because fossil fuels contribute to global warming and supplies are dwindling, more eco-friendly alternatives are required. However, biofuels may not be superior if their production results in environmental destruction, pollution and damage to human health, argue postdoctoral fellow Jörn Scharlemann and William Laurance, staff scientist at the Smithsonian Tropical Research Institute.⁹

A new study by Zah et al., commissioned by the Swiss government, calculates the relative merits of 26 biofuels based on relative reduction of greenhouse-gas emissions and an environmental-impact index, which includes damages to human health and ecosystems and natural resource depletion. The Swiss study identifies striking differences in the environmental costs of different biofuels. Fuels made from U.S. corn, Brazilian soy and Malaysian palm oil may be worse overall than fossil fuels. The best alternatives include biofuels from residual products, such as recycled cooking oil and ethanol from grass or wood.

⁹ Journal article: Scharlemann, JPW and Laurance, WF (2008); "How Green are Biofuels?" *Science* 319: 52-53

The Zah et al. study falls short in that it fails to consider secondary consequences of biofuels, such as rising food costs, but it is a big step forward in providing a way to compare the environmental benefits and costs of dozens of different biofuels.

"Different biofuels vary enormously in how eco-friendly they are," said Laurance. "We need to be smart and promote the right biofuels, or we won't be helping the environment much at all."

78. Pollution Shrinks Fetuses, Researchers Say

Exposure to air pollution significantly reduces fetus size during pregnancy—which bodes ill for the affected children's lifelong health, scientists are reporting. Adrian Barnett of Australia's Queensland University of Technology and colleagues compared fetus sizes as shown in more than 15,000 ultrasound scans, to air pollution levels in the area of Brisbane, Australia. "Mothers with a higher exposure to air pollution had fetuses that were, on average, smaller" as revealed by three key measures, Barnett said. "While we need to get more data from individual mothers before we can be more certain about the effects of air pollution on fetal development, we would recommend that where possible pregnant women reduce their exposure to air pollution."

Avoiding major roads when possible may help, he said.

The 10-year study, conducted with Craig Hansen of the U.S. Environmental Protection Agency, examined fetuses in mid-pregnancy and appeared in the Dec. 17 online issue of the research journal *Environmental Health Perspectives*. "To our knowledge this is the first study of its kind as it uses ultrasound measurement as a direct estimate of growth, rather than using birth weight as a delayed measure of growth," Barnett said.

"When analyzing scans from women at different distances to monitoring sites, we found that there was a negative relationship between pollutants such as sulfur dioxide found in diesel emissions, and ultrasound measurement.

Fetus size is important, Barnett said, because research shows that bigger babies are healthier in childhood and adulthood. "Birth weight is a major predictor of later health; for example, bigger babies have been shown to have higher IQs in childhood and lower risk of cardiovascular disease" later.

The results may be particularly surprising in light of the fact that Brisbane is seen as a relatively clean city, he added. "Some people may think there is no air pollution in Brisbane because the air looks so clean," he noted. But "you have to remember that most air pollutants are not visible to the naked eye, people do have a very outdoor lifestyle, and homes are designed to maximize airflow. So although the actual levels of pollution are low our exposure to whatever is out there is relatively high. This is particularly a problem for people who live near major roads." Motor vehicles cause most of the air pollution in Brisbane, he added, as in many other cities.

79. Honda Says Clean Diesel Cars to be Profitable

The head of Honda Motor Co said that the Japanese automaker's yet-to-be released clean diesel cars will be profitable immediately, unlike expensive gasoline-electric hybrid cars that still yield little or no profit after a decade on the market. "Our diesel cars are going to have an appropriate level of profit from the start," Chief Executive Takeo Fukui told a small group of reporters in an interview at the North American International Auto Show in Detroit.

He said Honda's clean diesel cars, to be launched in the United States next year, will not require a urea tank as most European systems do. The use of aluminum in the cylinder block instead of steel would also allow it to manufacture the engines using its existing gasoline engine facilities, keeping initial investments down.

Honda's new diesel drive train generates and stores ammonia within a two-layer catalytic converter to turn nitrogen oxide into nitrogen. The new system will meet the same emissions regulations as gasoline in the United States, Fukui said.

Japan's second-biggest automaker is set to announce the launch of its first ultra-clean diesel car in the United States in 2009, as planned. Honda's premium Acura brand will be the first to get the four-cylinder diesel engine, Fukui said. Models fueled by V6 diesel engines will follow after 2010, he added. Fukui said he expected Honda's sale of four-cylinder diesel cars to reach about 150,000 vehicles globally by around 2010 with the planned roll-out in the United States and Japan. Honda now sells more than 100,000 diesel cars a year, all in Europe.

Honda is also due to begin selling low-cost hybrid cars in 2009. Half of the planned 200,000 units of the hybrid-only family car are bound for North America. A new hybrid sports car is set to follow, while the mass-volume Civic series will also get the cheap and improved hybrid system with the next remodeling. Fukui said he expected the new hybrid system would be as profitable as conventional gasoline cars, depending on the cars' selling price. The chief executive has indicated that he wants to limit the price premium for consumers buying hybrid cars to around 200,000 yen (US\$1,800) to achieve the company's target of powering 10 percent of its global vehicle sales with hybrid cars by around 2010.

80. Toyota Lays Down Hybrid Gauntlet

In an escalating war of green-fuel rhetoric, Toyota Motor CEO Katsuaki Watanabe laid forth several bold moves for the automaker in the next several years. In a speech, Watanabe proclaimed that Toyota will:

- Deliver lithium-ion hybrid vehicles to demonstration fleets in 2010. These vehicles include plug-in hybrids that already have been under development. Toyota, in fact, already has two plug-in prototype vehicles in demonstration tests with the University of California, but they have lower-tech nickel-metal-hydride battery packs.
- Unveil new hybrid models for the Toyota and Lexus brands at the 2009 Detroit auto show. These will be production vehicles in addition to the Prius, and will be offered only with hybrid powertrains.
- Increase investment in cellulosic ethanol derived from wood waste, through a Toyota affiliated company.
- Launch clean-diesel V-8 versions of the Tundra pickup and Sequoia SUV within the next 24 months.
- Expand the Panasonic joint-venture battery factory, adding an assembly line dedicated to automotive battery applications. The plant also will see an expansion of the Prius battery pack assembly line, from 500,000 units to 600,000 units.

- Sell 1 million hybrid-powered vehicles by 2011 or 2012.
- Meet the CAFE standard of a 35 mpg vehicle fleet “well in advance” of the 2020 regulation's start. “We will not wait until the deadline to comply” with the regulations, Watanabe said.

Watanabe added that the 2010 deadline for a lithium-ion plug-in hybrid is the latest he wants to see the vehicle reach demonstration fleets. “I have asked my engineers to come up with plug-in hybrid not at end of 2010, but earlier than that,” Watanabe said.

In a subsequent interview, Watanabe cautioned against assuming that lithium-ion battery performance is scalable. “As of today in the lab, the small volume of lithium-ion we have already developed is closer to the level we are satisfied with, but that is only in small quantity. There is a huge difference between small volume and mass production of lithium-ion,” Watanabe said.

Added Masatami Takimoto, Toyota executive vice president in charge of R&D and powertrain: “It is most difficult related to mass production, whether stable performance is assured. Unless you have a plant that can produce a large quantity of lithium-ion batteries, we cannot verify if we have good tech or not.”

These comments could be interpreted as a direct shot at General Motors recent alliance with small-time battery maker A123 Systems of Watertown, Mass. GM is relying on A123 to deliver the lithium-ion technology for its Chevrolet Volt, but A123 has yet to develop a mass production assembly line.

Toyota’s plant expansion with Panasonic EV Energy in Japan will include a separate assembly line for lithium-ion only batteries. That will be in addition to an expansion of the Prius battery pack line, from 500,000 units to 600,000 units.

81. Air Pollution May Cause Heart Disease; Nano-Sized Particles Most Damaging

A new academic study led by UCLA researchers has revealed that the smallest particles from vehicle emissions may be the most damaging components of air pollution in triggering plaque buildup in the arteries, which can lead to heart attack and stroke. The findings appear in the January 17th online edition of the journal *Circulation Research*.

The scientists identified a way in which pollutant particles may promote hardening of the arteries — by inactivating the protective qualities of high density lipoprotein (HDL) cholesterol, known as “good” cholesterol.

A multicampus team from UCLA, the University of Southern California, the University of California, Irvine, and Michigan State University contributed to the research, which was led by Dr. Andre Nel, UCLA's chief of nanomedicine. The study was primarily funded by the National Institute of Environmental Health Sciences and the U.S. Environmental Protection Agency (EPA).

“It appears that the smallest air pollutant particles, which are the most abundant in an urban environment, are the most toxic,” said first author Dr. Jesus Araujo, assistant professor of medicine and director of environmental cardiology at the David Geffen School of Medicine at UCLA. “This is the first study that demonstrates the ability of nano-sized air pollutants to promote atherosclerosis in an animal model.”

Nanoparticles are the size of a virus or molecule — less than 0.18 micrometers, or about one-thousandth the size of a human hair. The EPA currently regulates fine particles, which are the next size up, at 2.5 micrometers, but doesn't monitor particles in the nano or ultrafine range. These particles are too small to capture in a filter, so new technology must be developed to track their contribution to adverse health effects.

"We hope our findings offer insight into the impact of nano-sized air pollutant particles and help explore ways for stricter air quality regulatory guidelines," said Nel, principal investigator and a researcher at UCLA's California NanoSystems Institute.

Pollution particles emitted by vehicles and other combustion sources contain a high concentration of organic chemicals that could be released deep into the lungs or even spill over into the systemic circulation.

The UCLA research team previously reported that diesel exhaust particles interact with artery-clogging fats in low-density lipoprotein (LDL) cholesterol to activate genes that cause the blood-vessel inflammation that can lead to heart disease.

In the current study, researchers exposed mice with high cholesterol to one of two sizes of air pollutant particles from downtown Los Angeles freeway emissions and compared them with mice that received filtered air that contained very few particles.

The study, conducted over a five-week period, required a complex exposure design that was developed by teams led by Dr. Michael Kleinman, professor of community and environmental medicine at UC Irvine, and Dr. Constantinos Sioutas, professor of civil and environmental engineering at USC.

Researchers found that mice exposed to ultrafine particles exhibited 55 percent greater atherosclerotic-plaque development than animals breathing filtered air and 25 percent greater plaque development than mice exposed to fine-sized particles. "This suggests that ultrafine particles are the more toxic air pollutants in promoting events leading to cardiovascular disease," Araujo said.

Pollutant particles are coated in chemicals sensitive to free radicals, which cause the cell and tissue damage known as oxidation. Oxidation leads to the inflammation that causes clogged arteries. Samples from polluted air revealed that ultrafine particles have a larger concentration of these chemicals and a larger surface area where these chemicals thrive, compared with larger particles, Sioutas noted. "Ultrafine particles may deliver a much higher effective dose of injurious components, compared with larger pollutant particles," Nel said.

Scientists also identified a key mechanism behind how these air pollutants are able to affect the atherosclerotic process. Using a test developed by Dr. Mohamad Navab, study co-author and a UCLA professor of medicine, researchers found that exposure to air pollutant particles reduced the anti-inflammatory protective properties of HDL cholesterol. "HDL normally helps reduce the vascular inflammation that is part of the atherosclerotic process," said Dr. Jake Lusis, study co-author and a UCLA professor of cardiology, human genetics and microbiology, immunology and molecular genetics. "Surprisingly, we found that exposure to air pollutant particles, and especially the ultrafine size, significantly decreased the positive effects of HDL."

To explore if air particle exposure caused oxidative stress throughout the body — which is an early process triggering the inflammation that causes clogged arteries — researchers checked for an increase in genes that would have been activated to combat this inflammatory progression. "We found greater levels of gene activation in mice exposed to ultrafine particles, compared to the other groups," Lusic said. "Our next step will be to develop a biomarker that could enable physicians to assess the degree of cardiovascular damage caused by air pollutants or measure the level of risk encountered by an exposed person."

Researchers added that previous studies assessing the cardiovascular impact of air pollution have taken place over longer periods of exposure time, such as five to six months. The current study demonstrated that ill effects can occur more quickly, in just five weeks.

"Further study will pinpoint critical chemical and toxic properties of ultrafine particles that may affect humans," Nel said.

82. New Diesel Study Shows Links With Asthma

A new study published in the *New England Journal of Medicine* linked exposure to diesel exhaust with asthma¹⁰. The researchers recruited 60 adults with either mild or moderate asthma to participate in a randomized, crossover study. Each participant walked for 2 hours along a London street (Oxford Street) and, on a separate occasion, through a nearby park (Hyde Park). Detailed real-time exposure, physiological, and immunologic measurements were taken.

Participants had significantly higher exposures to fine particles (<2.5 µm in aerodynamic diameter), ultrafine particles, elemental carbon, and nitrogen dioxide on Oxford Street than in Hyde Park. Walking for 2 hours on Oxford Street induced asymptomatic but consistent reductions in the forced expiratory volume in 1 second (FEV₁) (up to 6.1%) and forced vital capacity (FVC) (up to 5.4%) that were significantly larger than the reductions in FEV₁ and FVC after exposure in Hyde Park (P = 0.04 and P = 0.01, respectively, for the overall effect of exposure, and P<0.005 at some time points). The effects were greater in subjects with moderate asthma than in those with mild asthma. These changes were accompanied by increases in biomarkers of neutrophilic inflammation (sputum myeloperoxidase, 4.24 ng per milliliter after exposure in Hyde Park vs. 24.5 ng per milliliter after exposure on Oxford Street; P = 0.05) and airway acidification (maximum decrease in pH, 0.04% after exposure in Hyde Park and 1.9% after exposure on Oxford Street; P = 0.003). The changes were associated most consistently with exposures to ultrafine particles and elemental carbon.

¹⁰ "Respiratory Effects of Exposure to Diesel Traffic in Persons with Asthma", James McCreanor, M.R.C.P., Paul Cullinan, M.D., Mark J. Nieuwenhuijsen, Ph.D., James Stewart-Evans, M.Sc., Eleni Malliarou, M.Sc., Lars Jarup, Ph.D., Robert Harrington, M.S., Magnus Svartengren, M.D., In-Kyu Han, M.P.H., Pamela Ohman-Strickland, Ph.D., Kian Fan Chung, M.D., and Junfeng Zhang, Ph.D.