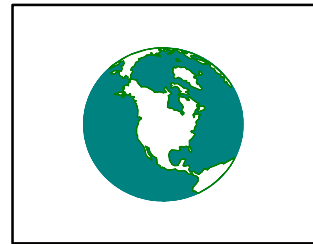


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CAR LINES

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EUROPE

1. Maker Challenges MMT Limit in EU Fuel Quality Law

MMT maker Afton Chemical Ltd has launched a legal challenge against an EU-wide limit on the metallic fuel additive MMT in petrol. The limit was adopted earlier this year as part of a revision of the fuel quality directive (FQD). Afton is seeking an injunction in the High Court of England and Wales to prevent the limit's implementation in Britain. The firm says the limit is unlawful, arguing it breaches several key EU principles such as the principle of equal treatment.

The High Court has asked the European Court of Justice (ECJ) to issue a preliminary ruling on the legality of the MMT limit, according to a memo published by the Council of Ministers. It will take more than a year for the ECJ to deliver its ruling.

Under the revised fuel quality directive, MMT in petrol should be limited to 6 milligrams per liter (mg/l) from 2011, falling to 2mg/l from 2014. EU member states have until the end of next year to transpose the new rules into national law.

Afton submits that the FQD (specifically Article 8a (2) on MMT limits and Articles 8a (4), 8a (5) and 8a (6) on labeling) violates the principle of equal treatment and legal certainty and that these requirements are unlawful, a manifest error of assessment [by the Commission] and breach the principle of proportionality.

Afton is well known for legal challenges to avoid government efforts to ban the use of MMT having previously sued both the US and Canadian governments when they attempted to ban the additive.

2. London Mayor Johnson to Reintroduce Pollution Zone A Year after UK Deadline

London mayor Boris Johnson has unveiled wide-ranging plans designed to cut air pollution in the capital and avoid fines of up to £300m arising from the UK's continued breach of EU air-quality rules. The new draft air-quality strategy sets out a raft of proposals designed to bring emissions of particulate matter (PM10) and nitrogen dioxide (NO2) in line with EU regulations, including an age limit on taxis, bus upgrades, and targeted action plans to cut emissions and improve traffic flow at "pollution hotspots".

The Mayor's Office predicted the new measures will cut PM10 levels 20 to 25 per cent by 2012 and deliver a 35 to 40 per cent reduction in NO2 by 2015.

However, Johnson's proposals could put him on a collision course with the national government after he announced that the third phase of the Low-Emission Zone - which bans the most polluting vans and good vehicles from entering London - would not come into effect until 2012, a year after the UK is meant to meet the EU deadline for compliance with air-pollution rules.

Johnson controversially suspended the planned expansion of the zone back in February and has reiterated his view that delaying the introduction of the measure by two years would be good for the capital's businesses.

Johnson's plans are due to be inspected by the government to see if they will indeed bring London into line with the EU targets. The government had originally indicated in submissions to

the EC that it would hit the targets by extending London's congestion zone to the west and by introducing the third phase of the zone – both of which Johnson has now scrapped or delayed until after the 2010 deadline for compliance. The Department for the Environment, Food and Rural Affairs has warned Johnson that he will need to come up with an adequate replacement for the two measures or risk the government taking control of the issue from him.

London's new plan comes as figures released by the EU confirmed that the UK is not alone in struggling to meet air-quality targets. Nearly half of all EU member states are facing sanctions over their failure to achieve 2010 air-quality standards prescribed under the EU National Emission Ceilings Directive. The legally-binding directive lays out emissions limits for four air pollutants – sulfur dioxide (SO₂), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOCs) and ammonia (NH₃). These pollutants contribute to the formation of ozone and particulate matter, which are damaging both to the environment and human health. But according to a status report published by the European Environment Agency, 12 out of the 27 EU member states, including the UK, are expected to miss the most demanding target on levels of NO₂ pollution, putting them at risk of substantial fines.

While some countries such as the Netherlands, Sweden and Germany anticipate being just slightly off the mark in relation to their NO_x goals, others such as Ireland, Austria and Belgium predict that they will exceed ceilings by as much as 60 per cent. In addition, three member states – France, Germany and the Netherlands – project that they will each miss two targets, while Spain expects to miss three targets covering NO_x, NMVOC and NH₃. Spain believes that, even if the current economic slowdown is taken into consideration, it would still fail to come within prescribed limits.

As a result, NO_x emissions for the EU as a whole are now projected to be six per cent higher than the aggregated member state ceilings and 16 per cent higher than the stricter ceiling for the EU as a whole. Only SO₂ and NH₃ emissions are expected to be substantially reduced and to meet aggregated ceiling requirements.

The figures come as the EC prepares to announce even stricter emission ceilings for 2020 and include national limits on fine particulate matter (PM_{2.5}) for the first time.

'Clearing the Air', the Mayor's draft air quality strategy, outlines the key sources of London's harmful airborne pollutants and proposes an action plan to reduce emissions. Key measures contained in 'Clearing the Air':

a. Improvements proposed ahead of or by 2012:

- Taxis are responsible for around 35 per cent of road transport PM₁₀ exhaust emissions in central London, where PM₁₀ problem areas are: the Mayor proposes to introduce an age limit for taxis and minicabs starting with a 15 year age limit in 2012, tightened to a 10 year age limit in 2015. He will also require that all taxis and minicabs being licensed for the first time from 2012 are Euro 4 compliant. The Public Carriage Office is also exploring how we can take advantage of new technology for cab engines e.g.: hybrid technology, that will be greener and save on fuel costs;
- The current Low Emission Zone will continue to operate to reduce emissions from the heaviest, most polluting vehicles; the Mayor will introduce phase 4 of the scheme in January 2012 to require Euro IV standards for HGVs, buses and coaches;

- The Mayor will introduce phase 3 of the Low Emission Zone covering larger vans and minibuses in 2012 - this is a reprieve for small businesses, charities and self-employed Londoners who will be most affected by this measure, allowing more time to fund vehicle replacement in tough economic times;
- Tailored action plans for air quality hotspots to implement a package of intensive measures to tackle pollution - this could include directing the cleanest buses (currently hybrid) into these areas; planting street vegetation, and encouraging better traffic management;
- Special measures on the highest pollution days: working with the boroughs, the Mayor will develop a package of special measures for implementation (e.g.: cycling days and more traffic management) on days of the highest concentrations to reduce people's exposure to emissions;

b. Improvements proposed by 2015:

- London's bus fleet is already the cleanest in the UK but the largest source of NOX from transport is still from buses and coaches. The Mayor will ensure that all of London's buses meet at least Euro IV standards by 2015 - this will involve retrofitting around 2,800 buses;
- From 2015 A "phase 5" of the Low Emission Zone will be introduced for NOx covering HGVs, buses and coaches - this will need support from central government in establishing a suitable certification and testing regime for the required retrofitting equipment;
- The Mayor is committed to procuring 1000 electric vehicles in the Greater London Authority Group public fleet by 2015. He is also investing in new infrastructure and standards to support his target of 100,000 electric vehicles on the streets as soon as possible;

'Clearing the Air' is now being issued for consultation with the London Assembly and the Greater London Authority's functional bodies including Transport for London, London Fire Brigade and the Metropolitan Police Authority and other interested parties - the consultation period will last until 30 November. In early 2010 a second version of the strategy will be published for formal public consultation.

3. Member States Request Delay in CO2 Curbs for Vans; Commission Caves In

France, Italy and Germany have written to the European Union's executive asking for a delay or softening to planned curbs on carbon dioxide emissions from new vans. The European Commission has been mulling proposals that would force van makers to cut emissions from new vans by 14 percent to 175 grams per kilometer by July 2013 or face fines. But the auto makers have pushed hard for the goal to be gradually phased in and for fines to be weakened, just as they argued last year over curbs to CO2 from cars. Such investment in energy efficiency is not possible in times of economic crisis, they argue. Paris, Rome and Berlin asked in their letter that the Commission yield to the industry's demands by phasing in the curbs around 2017. The 175 g target has not been challenged.

The launch of the proposal was delayed twice in recent weeks as officials in the Commission's industry and environment units wrangle over the details. Finally on October 28th, the Commission announced it has agreed to weaken the van CO2 limits.

According to the legal proposal, the average new van sold in Europe in 2016 should emit 175g CO2/km. This represents a 14% reduction over nine years on the 2007 level of 203 g/km. Yet, the best diesel cars have improved by up to 27% over the last two years, T&E argues that the technology developed for cars can also be used for vans.

From 2014-2016, the target will be 'phased in', effectively allowing van manufacturers to only declare their cleanest models. However, in a non-binding February 2007 policy document the European Commission said the 175g/km target for vans should be met by 2012, with a second target of 160g/km by 2015; the proposal therefore represents a four-year delay. The Commission has also postponed plans to include minibuses, a further weakening.

Kerstin Meyer of Transport & Environment said: "Europe is facing a climate and energy crisis that will have serious repercussions for decades to come. We need to start cutting carbon now, not in 2016. The EU is once again weakening vehicle fuel efficiency standards, one of the most important tools for tackling carbon emissions and oil use. As a way out of this crisis, it would be far better to invest precious financial resources in low carbon technology than to waste them on importing oil."

"EU governments have spent billions in recent months on subsidies for new vehicles, bailouts for automotive companies, and taxpayer-backed loans for the development of low carbon vehicle technology. By lobbying against fuel efficiency standards, the automotive industry is showing that it is more than happy to take taxpayers' money and run."

The proposal also indicates a long term target of 135 g/km by 2020. But the language on the target indicates it is not fixed and could still be reviewed.

Earlier environmentalists had challenged European Commission president José Manuel Barroso to back the original proposal if he wanted to keep his promise to decarbonize the EU transport sector during his second mandate. In a letter, green groups T&E and Greenpeace urged Mr. Barroso to stick to the commission's initial emission reduction targets. Presenting his political ambitions to the European Parliament in September, Mr. Barroso said decarbonizing the EU's electricity supply and transport sector would be a priority for the next commission. In his first test, he seems to have backed down.

4. Wales' Air Quality at Best Level Since Industrial Revolution

Wales' air is the cleanest it has been since the days of the industrial revolution, according to new test results. Figures from the National Atmospheric Emissions Inventory measuring seven air pollutants, including lead and carbon monoxide (CO), show in most cases Wales has cut emissions by more than 50% since 1990.

But despite the positive figures Wales' is still lagging behind the rest of the UK in terms of the rate of improvement. Across every one of the seven types of air pollutants measured Wales is improving at a slower rate than the UK as a whole, according to the Air Quality Pollutant Inventories 1990-2007 report. It's thought the country's traditional dependence on heavy industries like coal and steel accounts for the slower rate of improvement.

Since 1990 CO emissions in Wales have fallen by 63%, non-methane volatile organic compounds (NMVOC), such as those from fuel and solvents, by 62%, nitrogen oxides by 44%, sulfur dioxide by 71%, ammonia by 18%, and lead by 89%. This compares to UK CO emissions which have tumbled by 76%, NMVOCs by 64%, nitrogen oxides by 46%, sulfur dioxide by 84%, ammonia by 21% and lead by 98%.

Environment minister Jane Davidson said: "The report illustrates the significant technological progress and development of effective environmental management and regulation processes for those sectors responsible for such emissions. "But we should not rest easy. It is clear that air quality continues to have the potential to affect health and the environment in parts of Wales, and the Welsh Assembly Government will continue to seek improvements in air quality."

Most ammonia emissions in the UK come from cattle manure and CO arises mainly as a result of car use. Nitrogen oxides results from car use, electricity and gas generation and industrial combustion. NMVOCs arise as vapors from things like the white spirits used to remove oil and grease and the solvents and chemicals relied on by dry cleaners and small bakeries. The vast majority of sulfur emissions come from fuel burning.

5. EU Parliament, Member States Agree On Tire Efficiency Labeling Scheme

Tires sold in the European Union after Nov. 1, 2012, would have to be labeled for fuel efficiency and noise performance under an informal agreement reached Oct. 1 by the European Parliament and EU member states. Tires would be placed into a classification ranging from A (best) to G (worst), depending on their performance and effect on a vehicle's fuel efficiency. The labeling requirement would apply to new tires for cars, vans, and trucks, but not to retread tires.

The standards now are subject to ratification by EU member states, followed by formal approval by the Parliament. The Parliament voted in April in favor of the proposal standards, but under the European Union's co-decision process, the legislation is subject to ratification by EU member state governments represented in the EU Council.

Green transport group T&E has warned the agreement would be unenforceable. Tire distributors would be allowed to either put a label on the tire at point of sale or provide it "in the immediate proximity of the tire before the sale of the tire", according to a draft compromise text. This turns the European Commission's proposal for a mandatory environmental impact label on tires into "a voluntary program, with no clear rules on how or where the labels should be displayed", T&E says. Member states could not police it, the group adds.

Senior member state officials are set to approve the draft text, after a second and final trialogue meeting with MEPs and the commission. The text will then pass to the parliament for a final OK.

The European Parliament introduced some flexibility on where to display the label in a first reading vote in April. EU governments, led by Germany and Italy, fought for and won still greater flexibility since then.

Among tire manufacturers, French firm Michelin is the only company calling for a mandatory label on the tire at point of sale. Without a labeling requirement, their environmentally superior tires would not win a significant competitive advantage.

In February, EU legislators agreed new rolling resistance and noise limits for tires. The standards will apply from 2012, with rolling resistance limits to be tightened in 2016-17. The label will reflect these requirements.

On other points, T&E criticized the draft compromise text for obliging car sellers to provide environmental information on tires only when customers have a choice of tires to go with a new vehicle. But it welcomed the commission's plan to launch a tire-linked fuel savings calculator by June 2012.

6. EU Backs 'Weaker' Tire Pressure Monitoring Standard

Member states and European Commission officials have backed a proposed time limit for systems reporting underinflated tires that green group T&E says will allow cars to be fitted with inefficient tire pressure monitoring systems (TPMS). T&E had called for a stricter limit that would have made it harder for manufacturers to use the so-called indirect TPMS. The green group says direct TPMS, which have pressure sensors inside each tire, are safer and more fuel efficient.

The TPMS standard will be adopted at a meeting of the UN's Economic Commission for Europe (UNECE) in Geneva. An official told the press that the commission would review the standard by 2015, and possibly propose a stricter time limit in a second phase.

7. France Will Toughen Incentive Rules for Low-Emitting Cars

France plans to tighten carbon dioxide emissions thresholds and payouts for its successful bonus-and-penalty program for new car purchases, the country's top environment official said on September 30th during a 2010 budget proposal presentation.

Jean-Louis Borloo, minister of ecology, energy, sustainable development, and the sea, said the so-called bonus-malus program, which provides financial bonuses to consumers who purchase low carbon dioxide-emitting vehicles and imposes a fine on those who buy high-emissions vehicles, has contributed "beyond all expectations" to reducing vehicle emissions. Borloo said the bonus-malus program to stimulate purchases of less-polluting cars is the runaway star of France's Grenelle program, which aims to make the country's economy more environmentally sustainable.

"The bonus-malus has massively changed the French automobile market, far beyond the effects we expected. In France, average emissions per vehicle are dropping by one gram [of carbon dioxide] per month, whereas before it was just one gram per year," Borloo told reporters during the budget presentation.

The proposed budget would significantly increase funding for key environmental programs and would make the country's tax system greener, in particular by adding a €17 (\$25) per metric ton carbon tax on both businesses and households amid other tax changes, the government said. It would expand funding for several major Grenelle programs. It also would make the bonus-malus program, which cost some €550 million (\$806 million) in 2009, more fiscally self-sustaining, by reducing the cost to an estimated €125 million (\$183 million) next year.

Both houses of Parliament may revise the budget proposal when they take up the measure. Any revisions would then have to be reconciled between the two houses before the budget could be finalized.

Under the proposal, bonus amounts for low carbon dioxide-emitting vehicles and bonus thresholds would be reduced in 2010. The emissions cutoff to receive a bonus would be reduced from 130 grams of carbon dioxide per kilometer to 125 grams (7.4–7.1 ounces per mile). In addition, the bonus for cars emitting 116–125 grams of carbon dioxide per kilometer (6.6–7.1 ounces per mile) would drop from €200 to €100. Bonuses for cars that emit 96–115 grams of carbon dioxide per kilometer (5.4–6.5 ounces per mile) would be reduced from €700 (\$1,025) down to €500 (\$733).

A “super bonus” of €5,000 (\$7,325) for cars emitting under 60 grams per kilometer (3.4 ounces per mile) will be maintained until 2012, the government said.

The malus, or penalty, will kick in for cars that emit 156 grams or more of carbon dioxide per kilometer (8.9 ounces per mile), compared with a threshold of 161 grams now, Borloo said. The penalty threshold will be reduced again in 2011, to 151 grams, one year ahead of schedule.

Bonuses under a separate junkyard bonus program will be reduced Jan. 1, 2010, from the current €1,000 (\$1,465) to €700 (\$1,025) for purchases of new cars emitting under 160 grams of carbon dioxide per kilometer, for vehicles older than 10 years, the government said. The proposal would reduce the junkyard bonuses again in July 2010 to €500 (\$742).

The proposed budget is intended to make the tax system “greener” by, among other things, establishing a tax on businesses and households per metric ton of carbon dioxide emitted, raising an existing regional tax on petroleum products, and toughening environmental conditions for tax credits for interest on home loans. Under the proposal, households and businesses would have to pay a carbon tax on oil, heating oil, gas, and coal, amounting to €17 (\$25) per metric ton of carbon dioxide, or about €0.04 cents (6 cents) per liter of gas, starting in 2010. Households would receive a credit in compensation for the tax, including credit for the additional value-added tax they pay on the tax itself. The government said the carbon tax is designed to change behavior, not to bring in revenue. If households do not pay any tax, they can receive a “green check” worth €46 (\$67) per adult in urban areas and €61 (\$89) in rural areas, plus €10 (\$15) per child, according to the budget.

The carbon tax would not apply to electricity generation, 85 percent of which comes from nuclear power. It also would not apply to industries already subject to the requirements of the European Union’s Emission Trading System, the government said.

The tax would be phased in for fisherman and farmers, using a partial reimbursement for farmers and a lower rate for fisherman, according to the budget. For trucks over 7.5 metric tons, the tax would be charged directly to their customers, the government said.

Under the budget, regional governments would be authorized to increase the interior tax on the consumption of petroleum products by up to €1.35 (\$1.98) per 100 liters of diesel and €0.73 (\$1.07) per 100 liters of gasoline.

Home buyers currently can receive a 40 percent credit on loan interest paid for the first year, and 20 percent for four subsequent years. Starting in 2010, the credit would apply only to new homes, and for homes not meeting energy efficiency standards the credit would fall to 30 percent the first year and 15 percent the next four years for 2010 purchases. For new homes that do not meet energy efficiency standards, the credit would be phased out by 5 percent per year and would disappear in 2013, the government said.

For purchases of air conditioners, current buyers in homes two years and older get a reduced value added tax of 5.5 percent. Starting 2010, buyers will be taxed at the top rate of 19.6 percent, according to the budget.

Several programs would receive a boost in funding in 2010 under the budget. According to Borloo, the outlay for a renewable energy development program to boost the use of renewable sources of heat would more than double to €314 million (\$460 million), up from €154 million.

The environment ministry also said it plans to have an additional 300 megawatts of solar energy capacity by the end of 2011, on top of 135 megawatts available today.

Another Grenelle program that would receive a boost under the budget is infrastructure work for building new high-speed rail lines.

In addition, the ministries of environment and of industry announced €900 million (\$1.32 billion) in funding to support development of electric and rechargeable hybrid vehicles, as well as a plan to buy tens of thousands of electric cars for government agencies to help kick-start the industry.

Borloo said that by 2020, France would invest some €440 billion (\$644 billion) and would create 600,000 jobs through the Grenelle program.

“However, if we want to meet our long-term goals of reducing emissions by 75 percent by 2050, compared with 1990, and by 23 percent by 2020, we will have to strengthen our strategy still more,” he said.

8. Spain to Use Upcoming EU Presidency to Push Use of Electric Cars, Solar Power

Spain will use its upcoming EU presidency to encourage the use of electric vehicles and solar energy, Industry Minister Miguel Sebastián said Oct. 1. Spain's six-month term in the rotating post begins Jan. 1, 2010, when it takes over from Sweden, which currently holds the post. “The electric vehicle is going to be our big industrial and energy policy goal in the coming years, and that's why one of the priorities of the Spanish presidency of the European Union, within the realm of the ministry I direct, will be the electric vehicle,” said Sebastián, who is minister of industry, tourism, and commerce.

According to the government, Spain will focus on “promoting a debate at the European level” on ways to encourage the production and use of electric vehicles. The goal is to create a European strategy based on the input of manufacturers, municipalities, energy companies, and consumers.

“Spain considers electric mobility to be a great opportunity for the massive introduction of renewable energies into the transport sector, which accounts for 40 percent of Spain's total energy consumption and 33 percent of [carbon dioxide] emissions,” the industry ministry said in a statement.

According to Sebastián, another priority for the first half of 2010 will be the Mediterranean Solar Plan, which aims to establish solar power facilities in both EU and non-EU countries bordering the Mediterranean Sea. The goal is to reach a capacity of 20 gigawatts by 2020.

The plan was announced July 13, 2008, at the Paris Summit for the Mediterranean. Spain in 2010 will organize a related solar plan conference to bring together EU member states, Mediterranean region governments, and industry representatives.

In addition to EU priorities, Sebastián laid out the administration's view of Spain's economic recovery based on "a new, sustainable economic model."

The move toward environmental sustainability, he said, will focus on the use of renewable energies, carbon capture and storage, electric vehicles, and "especially" energy savings and efficiency.

9. Sweden Plans to Abolish CO2 Tax On Fuel for Firms Subject to Emissions Cap

A Swedish bill abolishing the carbon dioxide tax on fuel used by companies covered by the European Union's Emission Trading System will become law later this year, a spokesman for the country's Finance Ministry confirmed.

The tax, which is set at €108 (\$159) per metric ton, is due to be abolished Jan. 1, 2011.

Published on September 29th and presented in connection with the center-right government's budget plan for 2010 (2009/10:1), the bill also contains changes to fuel and energy taxes, including a previously announced hike in the diesel fuel tax and a corresponding reduction in the road tax on diesel vehicles.

It also permits the government to set the energy tax charged on industrial fuel to the European Union's minimum level of 2.4 Swedish ore (0.3 cent) per kilowatt hour. In some sectors, no tax is currently levied.

The energy tax on diesel fuel will increase by a total of 40 ore (5.6 cents) per liter, the September 29th statement confirmed. An initial increase of 20 ore (2.8 cents) per liter on January 1, 2011, will be followed by a second increase of 20 ore per liter on January 1, 2013. The vehicle tax for diesel-powered passenger cars will fall by 4 percent on Jan. 1, 2011, while the tax on gasoline-powered cars will increase by 3 percent. On Jan. 1, 2013, the vehicle tax for diesel cars will decrease by a further 4 percent.

"Tax should depend to a greater extent on fuel consumption and to a lesser extent on the ownership of a vehicle," Magnus Sjoström, a senior administrative officer at the Ministry of Finance, told reporters on October 6th. "The variable tax on diesel should be increased and the vehicle tax should be reduced in line with the government's [position] that management of fuel consumption through fuel taxes is preferable to vehicle taxes.

"The energy tax is an important tool to cost-effectively achieve the goal of improving energy efficiency," he added. "The tax base for heating fuels will continue to include only fossil fuels and not renewables. This means that the energy tax also contributes to achieving renewable energy targets."

The bill's proposals, many of which were also featured in the government's March 11th Climate and Energy Strategy, will be presented to Parliament before the end of October and are scheduled to be adopted by Parliament in December, Sjoström said.

The bill entails a number of changes to the Energy Taxation Act (1994:1776), the Road Tax Act (2006:227), and the Law Introducing Specific Provisions on Vehicle Taxes (2006:228). Its various provisions will be implemented between 2011 and 2015.

10. Climate Agenda Revives Interest in Electric Cars

Electric cars are back on the agenda, in Europe and elsewhere, because of relentlessly rising greenhouse gas emissions that threaten dangerous climate change. At the 63rd Frankfurt Motor Show in mid-September, nearly every large carmaker had at least one electric vehicle on display.

European governments are also latching on to the hype: a flurry of announcements over the past few months has included promises of tax breaks, public procurement commitments, funding for research and a charging infrastructure for electric cars. Spain wants one million on the road by 2014, Germany by 2020.

Japanese carmaker Nissan is today investing half of its research and development budget in electric vehicles. Unlike most other carmakers, it is not trying to convert its existing models, but aims to provide the first range of affordable, purpose-built electric cars. On August 2nd, the company unveiled its starting effort: the Leaf, a fully-electric, medium-sized hatchback built around a battery rather than a battery fitted into a car. And herein lies what Nissan believes is its strong competitive advantage compared with other carmakers eyeing the electric route. The company says it is overcoming the technical hurdles holding back electric cars: limited autonomy, poor design, high prices and limited choice of models.

Managers at Nissan's European headquarters in Rolle, Switzerland, want to sell the electric car as a car. "Owning and driving an electric car versus an internal combustion engine car is not that different," says Lawrence Haddad, product strategy manager. To make this a reality, Nissan has invested above all in the car battery. This "key technical aspect" of an electric vehicle is where the company hopes to outdo its competitors. Nissan has 15 years of experience in batteries, most recently through a tie-up with NEC. The two launched a joint venture, the Automotive Energy Supply Corporation (AESC), in 2007. This year it is starting mass production of lithium ion batteries, also for sale to other carmakers. These batteries give the Leaf a 160-kilometre range on a single charge. Customer research has shown that for 92% of people in Europe this is adequate for daily use, Mr. Haddad says. The running cost works out to €1-2 over this distance, much cheaper than petrol. In total, the electric car should cost users 10-15% less than a normal car, Nissan says. Nissan is designing its electric vehicle range around its batteries "for maximum efficiency and benefits to our customers". But it realizes that, no matter how powerful its batteries are, they can never totally alleviate "range anxiety".

In reality, most people will probably charge their electric cars overnight – 7-8 hours for a full charge. But that does not remove the need for a charging infrastructure outside the home to tackle the long-standing fear of getting stuck somewhere, Mr. Haddad says. This, perhaps even more so than the development of the electric vehicle itself, is the big challenge for the future. "We realize that without the supporting grid, electric vehicles won't be successful," says Nissan in a statement. Through an alliance with French carmaker Renault, it is forging partnerships with governments and utilities around the world to develop a public charging infrastructure. The Renault-Nissan Alliance has 27 partnerships in place so far.

Between them, Nissan and Renault are effectively splitting the market. Renault is experimenting with "quick-drop" battery exchange stations in partnership with start-up Better Place. Nissan is

leading work with governments to develop a public network of “quick-charging” stations. Quick-drop and quick-charge are evolving as the two main options for stocking up on power quickly outside the home. Quick-charging at very high voltage (400 volts) could replenish the Leaf’s battery by up to 80% in just under half an hour, Nissan says. Combined with what it calls “autonomy-saving” measures, such as software to pre-air-condition a car before driving, the electric car will be just as flexible as a conventional car, the company believes.

Carmakers are also looking to governments for incentives, subsidies and public education to promote electric vehicles.

Incentives can be financial, such as exempting electric cars from car registration taxes, or non-financial, such as offering electric cars access to priority lanes.

Portugal is one country promising a lot. It has committed to: a €4,000 tax break on electric cars from late 2010; 20% of public fleet purchases being electric from 2011; building 1,300 charging stations by the same year; and public awareness activities including demonstrations from next year.

Despite all this, electric car proponents say politicians need to do more. “We need visionary people in politics,” says Joeri de Ridder, president of the Belgian electric car association ASBE. “Politicians need to say what should be done. If we just leave this to the open market people will keep on doing business as usual.”

The European Commission has yet to issue a strategy for developing electric cars. But commission president José Manuel Barroso said in September that under his leadership decarbonizing the transport sector, including a roll-out of electric cars, would be a priority for the next commission.

EU sources say a commission white paper proposing a European transport policy to 2020, currently undergoing consultation, sets out a vision for electric cars.

Until now, Nissan executives suggest, the role of the EU has largely been one of funding research. In 2010, all funding for road transport projects under the commission’s seventh framework program for research, will go to electric vehicles. The commission launched four calls for tender worth €100m in July.

11. Spain's Emissions Drop By 17% in First Half Of 2009

Carbon emissions in Spain fell dramatically by 17% in the first half of 2009 due to falling industrial output, a collapsing property market and increased renewable power production, according to a report published by economic research body FEDEA.

Emissions from the cement sector, which is heavily dependent on domestic construction, fell by 30%. Power sector emissions fell by 14%, partly because of a 6.4% drop in demand. In the transport sector, emissions fell by 5.5% as economic activity declined.

Spain's 2007 national carbon allocation plan requires a 17% emission reduction during the 2008-2012 period to achieve Kyoto compliance. CO2 emissions from power plants fell by 16.6% last year, according to WWF. On Thursday, the green group issued a report detailing how Spain could reduce non-ETS sector emissions by 30% by 2020.

12. Denmark to Tighten Pollution Requirements on Local Air Pollution

On September 20th, the Danish Environment Ministry (MST) announced that it will allow local municipalities to tighten pollutant emissions requirements for commercial vehicles operating in “environmental zones,” which are being established in the nation's largest urban areas. According to a written statement from MST, local authorities may require the installation of catalytic converters in gasoline-powered commercial vehicles over 14 years old and particulate matter (PM) filters in commercial diesel vehicles over seven years old.

The new rules are initially expected to affect around 14,000 commercial vehicles in the Copenhagen area and could be extended to other cities at a later date.

Under current rules, all larger commercial vehicles sold before Oct. 1, 2001 must have PM filters installed before they are allowed to enter urban environmental zones. On July 1, 2010, Euro III commercial vehicles, those sold before Oct. 1, 2006, must also have PM filters installed. Testing of particulate filters takes place at the same time as roadworthiness inspections.

Vehicles entering the zones without the correct filters are subject to fines. Typical penalties are 15,000 Danish kroner (\$2,950) for a vehicle owner and 5,000 kroner (\$985) for a driver.

According to Environment Minister Troels Lund Poulsen, the new rules could also lead to a significant reduction in nitrogen dioxide emissions as many companies will be forced to purchase newer vehicles. Overall, he said, particle pollution from vehicles is on course to be more than halved in large urban areas between 2006 and 2011. No date has yet been set for the introduction of the new requirements.

Currently, environmental zones are only operating in the cities of Copenhagen and Aalborg. A new zone will take effect in Odense on July 1, 2010. The city of Aarhus will establish a zone Sept. 1, 2010.

In a new transport strategy unveiled in December 2008, Denmark announced plans to waive registration fees for electric cars, to introduce new energy efficiency requirements for taxis and public transport, and to establish a new “green certificate” system for trucks.

13. French Agency Calls for Controls to Reduce Diesel Vehicles' NO2 Emissions

On September 1st, the French Agency for Environmental and Occupational Health Safety (Afsset) released a report calling for new national controls to reduce nitrogen dioxide emissions from diesel-burning vehicles to compensate for what it called inadequate EU rules. According to Nitrogen Dioxide Emissions From Diesel Vehicles, the pollutant—a respiratory irritant that can exacerbate asthma—poses health problems in French urban areas.

Due to diesel exhaust, levels of nitrogen dioxide near urban highways have not declined since the 1990s and in some areas have slightly increased, the report said.

Afsset said that although EU standards set emissions limits for so-called organic pollutants and particles that will lead to widespread installation of particle filters for diesel vehicles in the coming years, they “neglect” nitrogen dioxide emissions, considering them only as part of nitrogen oxide totals.

The advisory said EU rules will not significantly reduce nitrogen dioxide emissions until 2014, when sixth-generation EURO standards for vehicles go into effect, adding new limits for several pollutants, hydrocarbons, and nitrogen oxides in particular.

Afsset said a technical problem is partly to blame. The most widely used particle filtration technologies for diesel exhaust, although very effective, actually lead to significant new nitrogen dioxide emissions. The agency explained that filters accumulate soot that must be burned away to keep them working, and oxidation catalysts used in that process significantly increase nitrogen dioxide emissions without reducing overall levels of nitrogen oxides.

New generations of filtering technologies could significantly reduce nitrogen dioxide emissions, but it could be several years before these are available, the agency said.

Afsset recommended that France immediately specifically include nitrogen dioxide as criteria in all new regulations on vehicle emissions, and not just "total nitrogen oxide" emissions considered under current EU standards.

It advised changing criteria for particle filters installed on fleets, such as buses, utility vehicles, and taxis, to the lowest possible levels of nitrogen dioxide emissions

The government should implement a system to evaluate effectiveness of diesel emissions technologies, including particle filters, oxidation catalysts, and nitrogen oxide control technologies, taking a cue from experiences of Switzerland, Germany, Austria, and the United States, the agency said.

"Such a system should in particular take into account particle reduction, reduction of NOx [nitrogen oxides], limitation of NO2 emissions, and how performance [of a device] evolves with time," it said.

Afsset also recommended a study of toxicology related to diesel emissions from vehicles equipped with exhaust filtering and processing technologies.

"In particular, it should strengthen work on toxicity of emissions considered in the entirety, such as emitted aerosols in both their gaseous and particle stages," it said.

14. Switzerland Outlines Plans to Reduce Emissions

On September 11th, the Swiss government outlined its intention to further reduce emissions of particulate matter, nitrogen dioxide, ammonia, and volatile organic compounds (VOCs). In a written statement, the Swiss Federal Office for the Environment (FOE) said that measures introduced in the 1980s have led to satisfactory progress in reducing most air pollutants, including sulfur dioxide, carbon monoxide, and heavy metals such as lead, with emission levels falling below national norms.

However, more progress needs to be made regarding particulates, nitrogen oxide, ammonia, and VOCs, FOE said. The Swiss parliament has called on the government to address the problem.

As a result, the Swiss Federal Council, the government's executive arm, agreed on September 11th to instruct agencies to examine and to prepare measures to tackle emissions of the four pollutants, including new limits, incentives to promote cleaner technology, and greater

international cooperation, FOE said. The Federal Council said Switzerland should aim for a 50 percent reduction of nitrogen oxide emissions, a 45 percent reduction in PM emissions, a 40 percent reduction in ammonia emissions, and a 20 percent to 30 percent reduction in VOC emissions from 2005 levels by 2020.

The strategy calls for reviewing emission limits applicable to industry, agriculture, and motor vehicles, with the norms adapted in line with the latest technical advances for reducing air pollutant emissions from these sources.

Financial incentives may also be introduced to encourage the use of less-polluting vehicles, such as instituting environmental labeling or offering reduced road toll rates for trucks equipped with particulate filters.

The Federal Council also agreed that Switzerland should work more closely with the European Union, with which Switzerland closely aligns its environmental standards to ensure pollutant emission levels are in line with the latest technological advances.

15. Air Pollution Along Major Swiss Road Axis Declines Slightly

Air pollution levels along a major European road axis declined slightly from 2003 to 2008, according to a report issued by the Swiss government on August 24th. The Monitoring of Supporting Measures—Environment report by the Swiss Federal Environment Office noted that emissions of nitrogen oxide declined by 1 percent to 5 percent, while emissions of particulates fell between 3 percent and 6 percent along the A2 and A13 motorways, both major routes for north-south movement of Europeans and goods. The figures represent the range of averages from six pollution-measuring stations along the two motorways.

Checks of individual trucks at monitoring stations indicated that truck emissions of nitrogen dioxide and particulates declined by 40 percent and 50 percent respectively between 2000 and 2007. The report attributed the decline to technological improvements in truck engines.

The ongoing economic downturn is expected to lead to further declines in emissions. Switzerland's transport ministry said that the volume of goods carried by trucks crossing the country in the first quarter of 2009 was down more than 14 percent from the same period in 2008, while the volume of goods carried across Switzerland by rail was down by more than 24 percent.

In 2000 Swiss voters approved a package of bilateral deals with the European Union to open Switzerland's roads to heavy truck traffic from the bloc in exchange for a steep transit tax. Voters also approved plans to spend 30 billion Swiss francs (\$28 billion) on new rail projects that allow trucks to be piggybacked through Switzerland by train.

In April, the Federal Environment Office reported that concentrations of harmful air pollutants in the country declined in 2008, although reported levels of nitrogen dioxide, ozone, and coarse particulate matter in the atmosphere remained above national norms in some areas.

16. Italian Cities Log Higher Ozone Readings Report Says

Ground-level ozone concentrations rose in many of Italy's 50 largest cities an environmental lobby group said in a report released August 19th.

According to the report by Legambiente, the number of days with ozone concentrations of 120 micrograms per cubic meter or above nearly doubled. The number of large cities with at least 25 days of dangerous levels of ground-level ozone concentration increased to 16 from 10. Most of these were in the flatlands of the Italian north, led by Novara with 67 such days, Lecco with 62, and Mantua with 60.

Breathing ozone can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion.

Legambiente said unusually high temperatures since June were a culprit in the higher ozone levels, but it called for the government to toughen pollution standards to prevent similar problems in the future.

Legambiente said the findings on urban areas, its first in two years, will be included in its annual study of overall Italian environmental health to be published early in 2010. In its *Ambiente 2009* (Environment 2009) publication, released March 5, Legambiente reported that greenhouse gas emissions in Italy continued to rise in 2008, while air and water quality continued to erode.

17. Europe Urged To Reduce Airlines' NOx Emissions

The European Commission must introduce policies to cut nitrogen oxide (NOx) emissions and condensation trails left by airplanes, the Dutch environmental research group CE Delft said in a recent report. Including aviation in the EU emissions trading scheme (ETS) is insufficient to curb the sector's impact on climate change, according to the researchers. Policies to tackle non-CO2 aircraft emissions are needed to stimulate essential technological improvements, they say.

The report follows CE Delft recommendations published by the commission's transport department in March. It had been commissioned after the EU executive announced a plan to reduce the sector's NOx emissions in July 2008 alongside measures to cut pollution from road transport. But the commission decided to postpone the plans because of scientific uncertainty over their impact on climate change. At high altitude NOx creates ozone, a greenhouse gas, but it also destroys methane, another greenhouse gas. Studies on its overall impact have been inconclusive, according to the commission.

The CE Delft researchers however, estimate that aviation's total impact on climate change is twice that of its CO2 emissions. Moreover, biofuels will not reduce non-CO2 emissions, they say. Biofuels have been widely touted as the fuel of the future for this industry.

The sector will probably not grow as quickly as most policymakers currently predict, according to the report. Nevertheless, airlines' environmental impacts will increase and, ultimately, demand will have to be curbed, the authors conclude.

18. Tajani: Transport "Must Reduce Dependence on Oil"

Making European transport more environmentally sustainable must be a priority for a post-2010 EU transport policy, transport commissioner Antonio Tajani recently told an informal meeting of member state transport ministers in Sweden. The ministers heard that the commission is keen to reduce the sector's dependence on oil, while at the same time improving its internal and external links. Mr. Tajani called for further investment in the TEN-T program and in new technical systems such as a European Railway Traffic Management System (ERTMS).

Some ministers warned that such plans should not impose heavy administrative burdens on businesses. The European Commission's Eurovignette proposal, which would let member states make trucks pay for environmental impacts, has stalled amid ministerial concern over its economic impacts.

In his speech in Stockholm, Mr. Tajani said there is no contradiction between economic and environmental objectives when it comes to transport.

19. Council Adopts Road Cabotage and Petrol Vapor Emissions Laws

Environmental laws on road cabotage and petrol vapor emissions have cleared a final legislative hurdle following their adoption by the Council of Ministers, paving the way for their entry into force.

The council approved a deal struck with MEPs in March on road cabotage. The revised rules clarify exactly when a hauler from one EU country may transport goods in another. The law should reduce pollution by cutting the number of empty trucks on European roads.

Another law which was adopted was a directive to reduce emissions of volatile organic compounds (VOCs) from service stations. The rules require large stations to install petrol vapor recovery systems from 2019.

20. Work Begins On New Czech Air Quality Law

The Czech environment ministry has launched an internal government consultation on a draft law intended to transpose the revised Cafe air quality directive into national law. The parliament is expected to approve the law in the first quarter of 2010. The draft law will allow Czech cities to set up low emission zones, according to a spokesman for the ministry. It will simplify national air quality rules and introduce a sector-specific approach to air pollution regulation.

21. Record State Spending Plans for Czech Road Projects Slammed By Bankwatch

The Czech government's approval of the highest ever state budget for transport infrastructure, involving the country's borrowing of loans from the European Investment Bank (EIB), has been criticized by Bankwatch member group Hnutí DUHA (Czech Friends of the Earth) for potentially giving the green light to a number of poorly conceived road construction projects that are suffering from endemic over-pricing and corrupt practices.

The Czech government approved CZK 96 billion (EUR 3.8bn) for 2010 under the State Transport Infrastructure Fund. A current EIB loan for Czech transport for the years 2008-2011 of CZK 34 billion (EUR 1.35bn) may be extended until 2015, with an additional CZK 25 billion (EUR 1 billion) to be negotiated next year.

Pavel Pribyl, of Hnutí DUHA and Bankwatch's Transport coordinator, said: "The Czech Ministry of Transport has once again managed to fill its boots in spite of an alarming lack of planning in Czech transport infrastructure. There continues to be a complete lack of clarity on construction plans, with no analyses available about the transport, social and economic benefits of the proposed projects.

"Outside the ministry, we remain in the dark about which construction projects are a priority and for what reason. Hundreds of millions of Euros of EU taxpayers' money from the EIB and the EU

Funds are on the line for a range of projects that make little economic or environmental sense. Infrastructure projects can stimulate an economy hit by recession, but not at any cost."

22. Germany Eyes Hydrogen Refueling Network By 2015

Germany could get a nation-wide network of hydrogen refueling stations by 2015, according to a memorandum of understanding signed between energy suppliers and carmakers and the transport ministry. A joint business plan for developing the network will be drawn up in 2011 under the "H2 Mobility" agreement. The network will support an expected commercial fleet of "several hundred thousand" hydrogen-powered vehicles from 2015 onwards, according to a press release.

The industry initiative will help Germany realize its ambition to become "the market leader for modern drive technologies," said German transport minister Wolfgang Tiefensee. In July, the European Commission launched a bidding process for €140m of project funding for hydrogen research.

23. Germany Sets Up Agency to Boost Electric Cars

The German government has set up a new agency to push the pace of electric car development after the auto industry missed out on chances to exploit its early breakthroughs with hybrid technology. Annette Schavan, minister for research and education, said the agency would coordinate the efforts of 30 different research institutes and be funded with 44 million Euros (\$63.78 million) from the government's 81 billion euro stimulus package.

Last month the German government set aside 500 million Euros of funding for the construction of electric charging stations and programs to boost battery technology in Europe's biggest car market.

The government, which has pledged to reduce greenhouse gas emissions by 40 percent by 2020 from 1990 levels, hopes to see 1 million electric cars on the road by 2020 at the latest. Schavan said the development of the electric-powered car was vital to secure Germany's reputation for auto manufacturing worldwide in the future.

German carmakers were among the first to develop hybrid engines but decided to concentrate their efforts to reduce emissions on diesel engines instead. In the face of growing concerns about climate change, they have shifted gears again.

The new agency will coordinate the work of researchers and industry experts. They will also study energy storage, the set-up of a new charging station infrastructure and ways to increase public awareness of electric cars.

Even though there has been criticism of the project as an election-year gimmick, the director of research at Mercedes parent Daimler AG, Thomas Weber, said research into key technologies was vital for the German car industry to stay ahead of its competitors. "The electric car has enormous potential," Weber told the news conference. "We cannot stand still and watch as other countries get ahead of us."

Daimler and utility RWE will start field-testing electric cars in Berlin later this year with a program called "e-mobility Berlin."

24. Member States Back Longer Exemptions for Lead in Cars

Member states have approved a proposal to allow certain applications of lead in vehicle components to continue to be exempted from a ban on heavy metals in cars under the EU's end-of-life vehicles (ELV) directive. The move is part of a wider review of existing and possible new exemptions to the ELV substance bans. The proposal on the current lead exemptions was prioritized as they are due to expire at the end of next year. A public consultation on the other existing and two new ELV exemptions was launched in June.

The proposal was backed by government representatives on 11 September, and matches recommendations made by Germany's Oko Institute in a consultancy report for the European Commission. It would end two existing general exemption for lead solders used in car components, replacing them with a number of application-specific derogations. An exemption for lead in solders used in electrical components would be granted until the end of 2015. Another for lead in solders for large semiconductors would be granted indefinitely, with a review in 2014. A request by European carmakers for an indefinite exemption for lead in "carry over" components first used in cars built before 2011 was rejected by member states, as recommended by the Oko Institute.

The European Parliament now has until mid-December to scrutinize the proposal under the EU's comitology rules. Unless MEPs vote to veto the amendments, the commission is expected to adopt the final proposal before the end of the year.

NORTH AMERICA

25. Landmark Proposal to Reduce GHG Emissions and Improve Fuel Economy Issued

On September 15th, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT) formally proposed new joint regulations for greenhouse gas (GHG) emissions and fuel economy for light duty vehicles. These regulations were in response to the May 19th announcement by President Obama to develop a rulemaking to reduce GHG emissions to 250 g/mile,¹ with a corresponding increase to fuel economy levels, for passenger vehicles by model year 2016. This action implements a groundbreaking agreement between the U.S. government, the State of California, and the auto manufacturers on a unified national program to regulate automobile GHG emissions and fuel economy. As part of this agreement, EPA granted a waiver to California to implement its GHG standard for model year 2009-2011 vehicles and California then agreed to forego enforcement of its GHG standards for 2012-2016 vehicles, in deference to the new federal program.

Key Elements of the Program²

- **Pollutants:** The U.S. EPA will regulate GHG emissions from passenger vehicles up to 8,500-lb gross vehicle weight rating (plus medium-duty SUVs and passenger vans up to 10,000 pounds). The proposed program sets standards for CO₂ emissions on the U.S. federal test procedure, which is weighted by 55% city driving and 45% highway driving. Equivalent Corporate Average Fuel Economy (CAFE) regulations, measured in miles per gallon of fuel consumed, are simultaneously established by the U.S. DOT National Highway Traffic and

¹ This is equivalent to 155 g CO₂/km on the U.S. test cycle, and this corresponds approximately to 172 g CO₂/km as measured on the New European Driving Cycle (NEDC).

² Based on the analysis prepared by the International Council on Clean Transportation (ICCT)

Safety Administration (NHTSA). There are additional provisions for the non-CO₂ GHG emissions of hydrofluorocarbons (HFCs) from vehicle air conditioning systems and per-vehicle emission caps set for nitrous oxide (N₂O) and methane (CH₄) emissions. EPA did not consider the global warming potential of other emissions (e.g., black carbon).

- **Stringency:** The proposal states that the average light duty vehicle GHG emission rate would be reduced from the average model year 2008 level of 342 gCO₂e/mile to 250 gCO₂e/mile for model year 2016, a 27% reduction, with interim standards for 2012-2015. Fuel economy is estimated to increase from an average model year 2008 level of 26 miles per gallon to 34.1 miles per gallon, for a 31% increase by model year 2016. Annually, this would be a 3.8% reduction per model year in the average GHG emissions, and 3.5% increase per model year in miles-per-gallon fuel economy.
- **Regulatory Design:** The proposed standards use a vehicle size-based standard for two vehicle categories, following the current NHTSA fuel economy standard framework. The program sets separate numerical standards for vehicle size or “footprint” (i.e., the area defined by the wheelbase and average track width) for passenger cars and for light trucks.
- **Other Provisions:** The main compliance mechanism of the standard is fuel efficiency of vehicles. Emission reduction compliance credits can also be achieved via several other mechanisms, including, early compliance in 2009-2011, air conditioning system technology, flexible fuel vehicle deployment, and off-cycle technologies:
 - **Early credits:** For model years 2009-2011, emission reductions for over-compliance with either the existing federal CAFE standards or with the California GHG standards can be accrued and utilized within five years.
 - **Air conditioning technologies:** Technologies for more efficient air conditioning (e.g., externally controlled variable displacement compressors) can be credited with up to 5.7 gCO₂e/mile; low-leak refrigerant systems technologies could be credited at up to about 9 gCO₂e/mile; and alternative refrigerant with lower global warming potential (e.g., HLO-1234yf) could be credited at up to 17 gCO₂e/mile.
 - **Flexible fuel vehicles (FFVs):** The deployment of E85 vehicles, capable of running on up to 85% ethanol by volume (and the rest gasoline), can be credited through model year 2015 consistent with the similar current provisions. These credits will have maximum FFV credit values of about 10 gCO₂e/mile for passenger cars and 18 gCO₂e/mile for light trucks in year 2013, and these limits would be decreased through year 2015. From model year 2016 on, E85 and other flexible fuel vehicles are to be credited based strictly on the use of the alternative fuel via a method that is not yet determined.
 - **Advanced technology vehicle:** Advanced technology vehicles are to be credited at 0 g CO₂e/mile for their use of electricity and hydrogen. Examples of such technologies include full battery electric vehicles, hydrogen fuel cell electric vehicles, and plug-in hybrid electric vehicles (for the percentage of mileage estimated to be utilizing electricity for primary power). These technologies will also receive bonus credits, whereby each such vehicle will be counted as two; the multiplier is proposed through 2013 and could be phased down in later years to 1.2 by model year 2016.
 - **Credit transfer, trading, carry-forward, carry-back:** As previous, compliance obligations can be carried forward or backward for five years to manage year-by-year compliance credits and debits. Continuing from model year 2011, regulated automakers will be able to transfer credits between their passenger car and light truck compliance obligations for

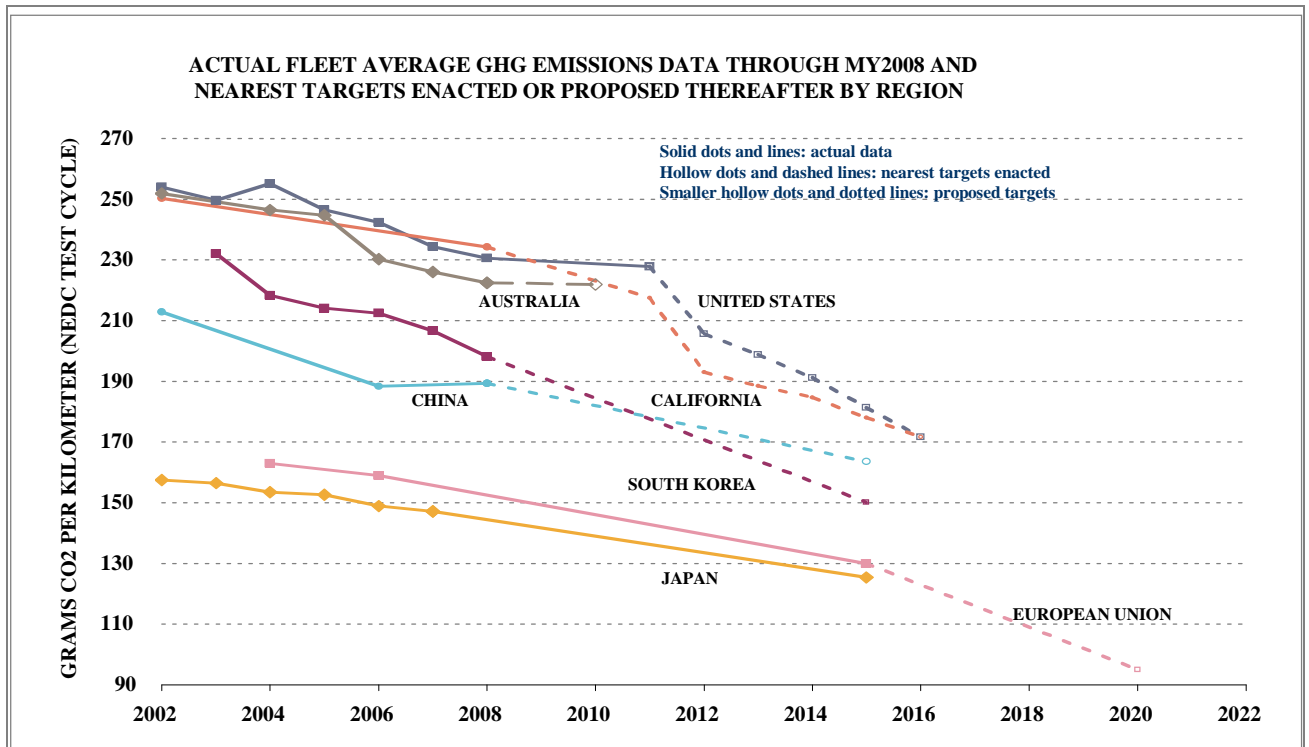
a given year, and they will be able to sell or trade credits to other automakers or purchase credits from other automakers to make up for under compliance debits.

- Low-volume manufacturer provisions: Lower volume manufacturers (i.e., less than 400,000 sales per year) are provided with temporary lead-time allowance alternative standards (TLAAS), whereby manufacturers would receive up to a 25% less stringent standard for a fraction of their vehicles for model years 2012-2015.

- Estimated impacts in automobile market: The standards are estimated to cost consumers on average \$1,050 per vehicle (\$968 per car and \$1,213 per truck) in model year 2016. These additional costs would be more than recovered due to fuel savings throughout the use of the vehicles. EPA projects that if consumers were to value five years of fuel savings in their vehicle purchase, vehicle sales could increase beyond projected levels due to the combined effects of additional upfront costs and consumer fuel savings; however, lower consumer fuel valuation is estimated to decrease sales.

- Climate change, oil security, and net cost benefits: The proposed rule is expected to produce cumulative savings of 950 million metric tons of greenhouse gas emissions and approximately 1.8 billion barrels of oil over the lifetime of the vehicles covered. In addition, the proposed regulation is estimated to produce a net benefit of between \$89 billion and \$129 billion dollars due to reduced fuel costs, reduced air pollution, reduced market externalities, reduced refueling time, and other factors that outweigh the technology costs associated with the new vehicles.

- International context: The ICCT has updated its chart that compares the GHG emission and fuel economy standards of major regulatory programs to reflect the new 250 gCO₂/mile standards described in the notice. The chart converts all regulatory programs to the European test cycle, so the U.S. agreement for 250 gCO₂/mile is equivalent to about 172 gCO₂/km when miles are converted to kilometers and adjusted to the European driving cycle.



26. EPA Announces it Will Reconsider National Smog Standards

U.S. Environmental Protection Agency Administrator Lisa P. Jackson has announced that the agency will reconsider the national smog standards issued by EPA in 2008 to ensure they are scientifically sound and protective of human health. Smog, which is also known as ground level ozone, has been linked to asthma and other respiratory illnesses.

“This is one of the most important protection measures we can take to safeguard our health and our environment. Smog in the air we breathe can cause difficulty breathing and aggravate asthma, especially in children,” said Jackson. “Reconsidering these standards and ensuring acceptable levels of ground-level ozone could cut health care costs and make our cities healthier, safer places to live, work and play.”

The reconsideration covers both the primary and secondary ozone standards. EPA sets primary air quality standards to protect public health, including the health of sensitive groups, such as children and people with asthma. The secondary standard is set to protect public welfare and the environment, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings. The Agency will propose any revisions to the ozone standards by December 2009 and will issue a final decision by August 2010.

EPA will conduct a thorough review of the science that guided the 2008 decision, including more than 1,700 scientific studies and any public comments from that rulemaking process. The Agency will also review the findings of EPA’s independent Clean Air Scientific Advisory Committee, which recommended stronger smog standards.

EPA will move quickly to implement any new standards that might result from the reconsideration. To reduce the workload for states during the interim period of reconsideration, the agency will propose to stay the 2008 standards for the purpose of attainment and nonattainment area designations. EPA will work with states, local governments and tribes to ensure that air quality is protected during that time.

Ground-level ozone forms when emissions from industrial facilities, power plants, landfills and motor vehicles react in the presence of sunlight. Scientific studies have linked ozone exposure to respiratory health problems ranging from decreased lung function and aggravated asthma to increased emergency department visits, hospital admissions, and even premature death. Seasonal ozone exposure has also been linked to adverse effects on sensitive vegetation, forests and ecosystems.

The 2008 standards, approved during the Bush administration, drew sharp criticism from environmental groups and the American Lung Association for being too weak and opening the regulatory process to interference from political appointees.

The Bush-era standards limited ground-level ozone -- also known as smog -- to no more than 75 parts per billion (ppb) in the air, which was lower than the previous standard of 84 ppb set in 1997. But environmental critics noted those standards were less strict than the 60-70 ppb advocated by the EPA's own science advisers.

EPA's decision includes a deal with states intended to address their concerns that the reconsideration could delay pollution cuts. Under the deal, EPA is vowing to maintain the current standard for permitting purposes, which will ensure pollution cuts for new or modified sources, while also delaying its process for designating areas out of attainment with the standard, a move that states say will avoid confusion over dueling designations.

On September 16th, government lawyers told a federal appellate court that EPA plans to revise the Bush-era rule, while working with parties challenging the rule on an agreement governing future litigation proceedings. "EPA has concerns regarding whether the revisions to the primary and secondary NAAQS adopted in the Ozone NAAQS Rule satisfy the requirements of the Clean Air Act, and thus EPA will reconsider the Ozone NAAQS Rule through notice and comment rulemaking," said the agency in a notice filed in the U.S. Court of Appeals for the District of Columbia Circuit. The notice says the agency and the court and parties to the case will negotiate an agreement over the coming weeks on "a proposal to govern future proceedings in these consolidated cases."

EPA was facing a September 16th deadline to tell the court whether it planned to revise the Bush-era rule or let it stand, which would allow pending litigation to proceed. Earlier this year, EPA asked the court hearing *State of Mississippi, et al. v. EPA* for a 180-day delay in litigation challenging the 2008 ozone NAAQS. In the consolidated case, Mississippi and industry groups challenged the rule as too stringent, while environmentalists and several states challenged it as too lax.

27. NRC Analysis Backs Energy Use Pollution Limits

Despite significant uncertainties in quantifying hidden pollution costs from fuel and energy use, a just-released National Research Council (NRC) report strongly indicates that policymakers should act to reduce greenhouse gases (GHG) and other energy-related pollution, saying that a failure to act now will result in even costlier damages in the future.

Although the report is “not a comprehensive guide to policy,” the panelists wrote, the committee’s analysis “does indicate that regulatory actions can significantly affect energy-related damages,” they concluded. “Major initiatives to further reduce . . . emissions, improve energy efficiency, or shift to a cleaner electricity-generating mix (e.g., renewables, natural gas, nuclear) could substantially reduce external effects’ damages, including those from grid-dependent hybrid and electric vehicles,” the report states.

While the panelists suggested the need to limit pollution, they urged caution, noting that the theory of economic efficiency recommends that damages should be reduced to the point where “the cost of reducing another ton of emissions (or other type of burden) equals the marginal damages avoided,” even as they noted other criteria for making regulatory decisions.

The October 19th report, “Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use,” concludes that air emissions from coal-fired electricity generation and the transportation sector are responsible for most of the estimated \$120 billion in annual environmental damages in 2005 that are not counted in energy prices, though the damages are likely much larger as the panel did not quantify expected damages from climate change and other hidden “externalities.”

The report, which Congress mandated in 2005, is expected to drive stricter regulation of both sectors as lawmakers ramp up their efforts to pass pending energy-climate change and transportation policies. The Senate is poised to debate far-reaching climate change and energy legislation -- followed later by transportation measures -- and thus the report could be extensively cited in forthcoming policy battles.

While the report was able to monetize some pollution damages, panelists did not quantify estimated damages from carbon dioxide (CO₂) and other greenhouse gas (GHG) emissions because of uncertainties in the scientific literature. “Given the preliminary nature of the climate-damage literature, the committee found that only rough order-of-magnitude estimates of marginal damages were possible at this time,” the report states.

Analysis of the damages from climate change depends on the extent of future damages and the discount rate used to weigh them, the report says, as a result the damages estimates range from about \$1 to \$100 per ton of CO₂ equivalent.

Despite the uncertainty in quantifying damages, the panel found that damages would be significantly higher in 2030 if GHG emissions are not reduced. “All of the model results available to the committee estimated that the climate-related damages per ton of CO₂-equivalent would be 50-80 percent worse in 2030 than in 2005,” according to the report. “Even if annual GHG emissions were to remain steady between now and 2030, the damages per ton of CO₂-equivalent emissions would be substantially higher in 2030 than at present.”

Assuming a \$30 per ton cost of CO₂, the panel estimated that generally, damages from GHG emissions were likely to be higher than those due to the conventional pollutants the report assessed. But for both coal and natural gas, those findings change if the damage estimate per ton of CO₂ changes. For example, for coal, the climate-related damages were higher than non-climate damages when assuming a \$30 per ton cost, but lower when set at a value below \$30 per ton.

Besides excluding monetary damages from climate change, the report also does not monetize harm to ecosystems, effects of some air pollutants such as mercury, and risks to national security, damages whose monetary value numerous environmental groups and some economists argue should be reflected in the cost of various energy uses, thus making the estimation far lower than the actual damages.

According to the report, the electricity sector as a whole was responsible for \$63 billion in damages. Emissions of sulfur dioxide, nitrogen oxide, and particulate matter from 406 coal-fired power plants accounted for \$62 billion, while emissions from 498 natural gas plants accounted for \$1 billion. Of those damages, however, the report finds that 10 percent of coal-fired plants were responsible for 43 percent of the damages, though these plants produce 25 percent of net electricity generation. Another 50 percent of coal-fired generation accounted for 12 percent of the damages, but produced only 25 percent of generation.

While natural gas generation was responsible for significantly fewer damages, the results for that sector were also skewed among the plants nationwide. According to the report, the least-damaging 50 percent of the gas plants account for only 4 percent of aggregate damages, compared with the 10 percent of plants which caused 65 percent of the damages.

By contrast, fuel use in the transportation sector accounted for \$56 billion in health and other damages, with \$36 billion from light-duty vehicles and \$20 billion from heavy-duty vehicles. The panel found that vehicle operations account for only one-third of total damages from the transportation sector, with the remaining damages stemming from production, refining and transportation of fuel and its feedstocks as well as damages from the manufacture and production of vehicles.

Surprisingly, the report finds that electric vehicles (EV) and grid-dependent hybrid vehicles are “somewhat” more damaging than other technologies because electricity generation for the vehicles relies mainly on fossil fuels that will still face few emissions controls by 2030. Moreover, to produce batteries and electric motors requires large amounts of energy and materials, adding up to 20 percent to the damages caused by EV manufacturing, which is also associated with toxic chemicals during the vehicles’ life cycle.

In examining various fuel/technology combinations, the committee found that some caused greater non-climate damages than others. Corn ethanol, when used in E85 (fuel that is 85 percent ethanol and 15 percent gasoline), for example, showed that the damages per vehicle miles traveled were similar to or slightly higher than for gasoline, both for 2005 and 2030. The damages arise because of the energy required to produce the biofuel feedstock and convert it to fuel. On the other hands, “cellulosic (non-food biomass) ethanol made from herbaceous plants or corn stover had lower damages than most other options when used in E85,” the report found, noting that “the feedstock chosen and growing practices employed do influence the overall damages from biomass-based fuels.” The committee did not quantify water use, an increasingly important issue for all energy resources, or indirect land use changes linked to increased biofuels use, a highly contentious issue that is addressed in House-passed climate and energy legislation.

The committee found that compressed natural gas had lower damages than other options, as the technology’s operation and fuel produce very few emissions. And diesel, although linked to some of the highest damages in 2005, is also expected to have some of the lowest damages in 2030, “assuming full implementation of the EPA Tier 2 vehicle emission standards that require

the use of low-sulfur diesel. The rule is also expected to significantly reduce PM and NOx emissions.

Noting transportation accounts for nearly 30% of total US energy demand and currently relies almost exclusively on oil, the report estimated motor vehicles produced \$56 billion in domestic health and other non-climate costs in 2005. It said the committee evaluated costs from exploration and production to refining and end-use. "In most cases, operating the vehicle accounted for less than one-third of the quantifiable non-climate damages," it said.

Costs per vehicle mile traveled were similar among various combinations of fuels and technologies (in a 1.2-1.7¢/mile range), and the report recommended caution in interpreting small differences. It said for both 2005 and 2030, vehicles using gasoline made from oil extracted from tar sands and those using diesel derived from the Fischer-Tropsch process (which converts coal, methane, or biomass to liquid fuel) had the highest life-cycle greenhouse gas emissions. Vehicles using ethanol made from corn stover or herbaceous feedstock such as switchgrass had some of the lowest greenhouse gas emissions, as did those powered by compressed natural gas, it added.

The report said fully implementing federal rules on diesel fuel emissions, which require 2007 model year or newer vehicles to use an ultra low-sulfur formulation, is expected to substantially decrease non-climate damage costs from diesel by 2030. The committee considered this an indication of how regulatory actions can significantly affect energy-related damages. Major initiatives to lower other emissions further, improve energy efficiency, or shift to a cleaner mix of energy sources could reduce other damages as well, it said.

28. Automakers Can Meet Fuel Economy and Greenhouse Emissions Standards

Detroit's Big Three automakers reiterated their support for a federal regulation setting vehicle fuel efficiency standards, and urged the government to pursue a long-term strategy. The automakers were speaking at a public hearing held by officials from the Environmental Protection Agency and the Department of Transportation, who are getting feedback on proposed fuel economy benchmarks and national greenhouse gas emissions limits for passenger vehicles.

The hearing gives automakers, environmental groups and the public their first chance to respond to the regulation and suggest changes that could be adopted before the rules take effect. More detailed comments are expected to be filed with the government in coming weeks.

Automakers are to meet a fleet-wide average of 35.5 mpg by 2016 -- four years ahead of what Congress required in 2007 when it mandated 35 mpg by 2020.

The hearing at the Detroit Metro Airport Marriott was the first of several planned to be held nationwide. It drew officials from Ford Motor Co., Chrysler Group LLC, Toyota Motor Corp. and environmentalists.

The hearings follow an agreement that President Barack Obama reached in May with major automakers and the state of California to harmonize state emissions limits with federal fuel economy requirements and set one national standard. The goal was to quickly and substantially boost fuel efficiency rules beyond what Congress required as part of a broad energy bill in 2007.

The National Highway Transportation Safety Administration and the EPA must allow for 90 days of public comment and finalize new rules by March 31, to allow time for automakers to meet the regulations, which would take effect in stages beginning with the 2012 model year.

29. Clean Diesel Program Is Clear Success, Says EPA

The EPA says in a report to Congress that the Clean Diesel Program is working as planned. The program, funded at \$50 million last year, allowed EPA to fund the purchase or retrofitting of 14,000 diesel-powered vehicles and pieces of equipment, reducing the potential for respiratory illnesses and saving money in communities nationwide.

The resulting benefits from the program include:

- reducing 46,000 tons of nitrogen oxide, a key contributor to elevated smog levels, and 2,200 tons of particulate matter over the lifetime of diesel vehicles
- conserving 3.2 million gallons of fuel annually under the SmartWay Clean Diesel Finance Program, which saves operators \$8 million annually
- generating public health benefits between \$500 million to \$1.4 billion

EPA is currently implementing stringent regulatory standards for new diesel engines. Because diesel engines remain in use for decades, it is also important to address the existing fleet. Under the diesel emissions reduction program, which comprises both national grant competitions and direct state allocations, EPA provides support for retrofits, repairs, replacements, idle reduction, cleaner fuels, innovative financing for clean technologies under the SmartWay Clean Diesel Finance Program, and other strategies.

There are a number of components of the Clean Diesel Program:

- National Clean Diesel Program (70% of funding)
 - National Clean Diesel Funding Assistance Program contains the majority of the funding dedicated to deployment of EPA-verified and certified technologies. This component will be administered by EPA's regional offices.
 - National Clean Diesel Emerging Technologies Program fosters the deployment of innovative technologies through a national grant competition. To qualify as an emerging technology, a manufacturer must have an EPA approved application and test plan for verification.
 - SmartWay Clean Diesel Finance Program allows EPA to issue competitive grants to establish national low-cost revolving loans or other financing programs that will provide funding to fleets to reduce diesel emissions.
- State Clean Diesel Grant Program (30% of funding)
 - State Clean Diesel Grant Program makes funds directly available to States interested in establishing new diesel emission reduction programs.

In a statement, the Diesel Technology Forum applauded the EPA's efforts and agreed with the study's results. Allen Schaeffer, executive director of the non-profit group, believes there would be even more benefits if the program had more funding.

30. Highway Contractors, Environmentalists Strike Deal on Clean Diesel

The construction industry urged Congress to let states mandate the use of clean-diesel equipment for federally funded highway construction. The Associated General Contractors of America joined the Clean Air Task Force in urging lawmakers to include the change in the next highway and transit bill that will serve as the de facto national transportation strategy for several years. The groups want the new legislation to authorize states to require diesel emissions reductions at construction sites and to cover the cost of retrofitting or repowering equipment manufactured to meet earlier emissions standards.

The proposal would not alter the bidding process for contractors hoping to land federally funded transportation projects, and any additional costs of the emissions-savings measures would be covered by federal funding.

Under the plan, states would first require contractors who successfully bid for a project to identify the off-road diesel equipment they plan to use during the construction process. States would then consider a U.S. EPA-approved measure for cutting emissions from the equipment and issue orders to the contractors requiring that they pursue the best of the emissions-reducing options.

Federal funds to reimburse contractors for any increased costs they incur would come from either an existing federal air-quality program, the Congestion Mitigation and Air Quality Improvement Program or from elsewhere in the transportation bill. Lawmakers provided states with \$8.6 billion over the last four years through the mitigation program, which was created in the 1991 highway bill.

The group's proposal would also require EPA and the Transportation Department to provide a streamlined formula and process to allow states to quantify the emission reductions achieved through the changes to the construction equipment.

The current highway law was set to expire at the end of September, but lawmakers extended it by one month as part of a larger bill continuing spending levels for a number of federal programs. House leaders are hoping to pass the next multiyear bill before the end of 2009, but the Senate and the White House instead want to see an 18-month extension of the current program to buy more time to consider what is expected to be a reform-minded bill.

The House effort, authored by Transportation and Infrastructure Chairman James Oberstar (D-Minn.), would streamline DOT, cutting more than 75 federal programs and consolidating highway funding under four core formula categories: critical asset investment, highway safety improvement, surface transportation, and congestion mitigation and air quality improvement.

31. 31 Areas Do Not Meet PM 2.5 Standards

The U.S. Environmental Protection Agency is designating 31 areas in 18 states as not meeting the agency's daily standards for fine particle air pollution (PM 2.5), or particulate matter. These areas, made up of 120 full or partial counties, were designated as "nonattainment" because

their air quality monitoring data showed that they did not meet the agency's health-based standards.

Counties in California, New Jersey, New York, and Pennsylvania seem to be particularly affected. The good news is that 91 U.S. counties that were identified as nonattainment in December 2008 are now meeting the standards.

According to Rick Albright, head of EPA's air quality program in Seattle, these communities will need to develop their plans for reducing pollution by 2012 and demonstrate that they are meeting federal standards and are in "attainment" by fall of 2014.

The five nonattainment areas in the Northwest (Idaho, Oregon, Washington) and Alaska all have more air pollution problems in the winter from home heating sources including older wood stoves and oil furnaces. In addition, during stagnant weather conditions with cold temperatures and limited air movement, pollution may "pool" in an area rather than dissipate. In some areas, vehicles and industrial sources also contribute to high wintertime particulate matter levels.

EPA also announced that Juneau, Alaska and Pinehurst, Idaho, which were formerly designated as nonattainment, are now considered in attainment of the standards, based on the latest data.

In Region 5, EPA said Illinois, Indiana and Minnesota counties meet the standard. The agency notified the governors of Michigan, Ohio and Wisconsin that some counties in their states fail to meet the standard:

- Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties in Michigan;
- Cuyahoga, Lake, Lorain, Medina, Portage and Summit counties in Ohio;
- Stark and Jefferson counties in W. Va.;
- Milwaukee, Racine and Waukesha counties in Wisconsin.

In December 2008, after closely reviewing recommendations from states and tribes along with public comments, EPA identified attainment and nonattainment areas based on air quality monitoring data from 2005 through 2007. The December 2008 designations were never published in the Federal Register and have been under review. Because the 2008 air quality data is the most recent, EPA used this data to make final designations.

The new data also showed that four new counties in three states are violating the daily PM 2.5 standards, the annual PM 2.5 standards, or both. EPA will work with these four counties to evaluate air monitoring data and other factors to make final designations by early 2010.

Nonattainment areas include counties with monitors showing violations of the standards and the nearby areas that also contribute to that violation. Affected states and tribes will be required to take steps to reduce the pollution that forms fine particles. The majority of U.S. counties and tribal lands are meeting these standards, but will need to continue working to maintain clean air.

In 2006, EPA strengthened the 24-hour fine particle standards from 65 micrograms per cubic meter to 35 micrograms per cubic meter of air to protect public health. Nationwide, monitored levels of fine particle pollution fell 19 percent from 2000 to 2008. Fine particles can either be emitted directly from power plants, factories, and motor vehicles, particularly diesel trucks and buses, or they can form in the atmosphere from reactions of sulfur dioxide and nitrogen oxides.

32. Three Navistar Diesel Engine Families with EGR Ready for EPA Certification

With the 2010 deadline looming on the horizon, Navistar recently unveiled three diesel engine families ready for submission to the EPA: two medium-duty models and its Big Bore heavy-duty 11- and 13-liter line. Having completed durability and performance testing on all three families, Navistar expects to submit its engines to the EPA in December.

The 2010 Big Bore is available in either 11- or 13-liter variations and features an integrated Jake Brake, twin turbochargers with fixed vanes, a new single ECU, a high-pressure common-rail fuel injection system, and a two-stage EGR cooler. Horsepower is rated from 330 to 475.

The two medium-duty diesel lines prepared for certification are the MaxxForce DT/9/10 inline-six and MaxxForce 7 V-8 families.

The DT inline-six lineup is available in two displacements -- 7.6- and 9.3-liter -- with power ranging from 215 to 330 horses. The 2010 engines feature a 10-percent increase in fuel injection pressure, a new cylinder-head design, and a single EGR cooler.

The MaxxForce 7 V-8 sits at the small end of Navistar's 2010 engine lineup. The 6.4-liter eight-cylinder utilizes higher fuel pressures, twin turbos, a more powerful ECU, and a single EGR cooler. The revisions entitle the MaxxForce 7 to one- to three-percent improvements in fuel economy and power figures from 200 to 300 horses.

Navistar is also currently developing a 2010-compliant heavy-duty 15-liter engine expected sometime in the spring.

33. Advisory Committee Endorses EPA Ship Rules; Congress Pushes Exemptions

On October 7th, the U.S. Clean Air Act Advisory Committee endorsed a recommendation by one of its subcommittees for the Environmental Protection Agency to finalize air pollutant emissions limits for oceangoing ships with no exemptions for the Great Lakes or any other areas of the country. A resolution adopted by the full committee, which advises EPA on air quality, endorsed a call by its Mobile Sources Technical Review Subcommittee "that the U.S. EPA carry out its proposal to address the emissions from large marine vessels on a nationwide basis and decline requests for any geographic exemptions including, but not limited to, the Great Lakes."

The subcommittee made the recommendation on October 6th.

In July EPA announced a proposal to limit emissions from oceangoing ships. It published the proposal on August 28th. The comment period closed on September 28th. Several Great Lakes shipping interests requested in their comments that EPA exclude the Great Lakes from the emissions limits. The comments said the emissions limits would put them at a disadvantage with coastal shipping. Alaska Gov. Sean Parnell (R) asked for an exemption for Alaska.

EPA's proposal would require steep reductions in nitrogen emissions from the largest new marine diesel engines and would lower the sulfur content of marine fuel oil. The proposal would limit the sulfur content of fuel used in Category 3 compression-ignition engines, those with a displacement greater than 30 liters per cylinder, to 1,000 parts per million in 2015. These engines are primarily used for propulsion power on large oceangoing vessels such as container

ships, tankers, bulk carriers, and cruise ships. Sulfur in diesel fuel leads to the formation of fine particles, which EPA blames for thousands of premature deaths each year.

The Cruise Lines International Association filed comments saying that Alaska and Hawaii should be excluded from the regulation until EPA has better data on the effect of shipping on air quality there. In addition, the cruise lines association said the calculation of benefits should be based on the 5,000 parts per million sulfur limit included in international standards adopted in 2008, not the proposed 1,000 ppm limit. According to the association the current average for sulfur in fuel used in category 3 engines is 27,000 ppm.

Margo Oge, director of the EPA Office of Transportation and Air Quality, said her office wants to move forward with the emissions limits, saying that they would prevent as many as 33,000 premature deaths each year.

Members of the Mobile Sources Technical Review Subcommittee also said Congress should refrain from enacting appropriations language exempting the Great Lakes from the emissions limits, although the subcommittee did not make a formal recommendation to that effect. Congress chose to ignore this advice.

Congressional negotiators pushed through a last minute deal on October 27th that would effectively exempt 13 ships that haul iron ore, coal and other freight on the Great Lakes from the proposed federal rule. Negotiators in Washington approved the exemption as part of a natural resources spending bill.

The rules are designed to reduce emissions of airborne contaminants blamed for smog, acid rain, respiratory ailments and possibly cancer. Large ships are leading producers of nitrogen and sulfur oxides and tiny contaminated particles that foul the air near ports and coastlines and hundreds of miles inland, the EPA says.

Frank O'Donnell, president of **Clean Air Watch**, a Washington-based advocacy group, said he was disappointed that Sen. Al Franken and Rep. Jim Oberstar, a Minnesota Democrat and chairman of the House Transportation and Infrastructure Committee, had sided with the shippers in talks with the Obama administration. They deservedly have a stellar record and reputation on environmental issues, but departed in this case to work essentially behind closed doors for a special interest fix for a favored industry," he said.

The deal also will allow the 13 ships that use a mixture of fuels to apply to the EPA for waivers. It directs the agency to evaluate the rule's economic effect on Great Lakes shippers and report in six months.

34. Triangle Air Quality Improved This Summer

North Carolina's air quality this summer was the best it's been in more than three decades -- the combined result of environmental laws, balmy weather and the recession. The N.C. Department of Environment and Natural Resources said that the state had just six "code orange" days in which ground-level ozone levels exceeded federal clean air standards. That's the lowest number since some local governments began tracking air quality in the state in the early 1970s. In the summer of 2008, the state had 36 days of unhealthy ozone levels, and 66 the year before that.

On "code orange" days, state officials urge children, the elderly and people with asthma to avoid strenuous outdoor activity.

The Triangle air quality improved noticeably this year, with no "code orange" days compared with 12 last year. The Charlotte-metro area -- which has the state's worst air quality -- was down to five "code orange" days this summer from 28 last year, when three days were bad enough to be tagged "code red."

The primary reason for the decline in ozone levels is lower emissions from coal-fired power plants and automobiles, according to DENR. The state's Clean Smokestacks Act of 2002 required the state's 14 coal-burning plants to cut ozone-forming emissions by three-fourths by 2012. Coal is used to generate more than half the state's electricity.

The environment has also benefited from the state's expansion of its motor vehicle emissions testing program from nine urban counties to 48 counties in 2006. The program checks whether catalytic converters and other equipment are working properly.

The estimated emissions from cars and trucks declined by 38 percent since 2002, DENR said.

35. DOE Revamping Alternative Fuel Program to Accelerate Electric Car Use

DOE is moving rapidly to redesign a 17-year-old program to give equal weight to both electric vehicles (EV) and alternative fuel vehicles (AFV) as part of an aggressive push to increase the federal government's contributions to reducing U.S. demand for oil and curbing greenhouse gas emissions (GHGs). The goal is to quickly phase more EVs into the federal fleet and advance the electric infrastructure necessary for an even broader increase in the vehicles.

The AFV program DOE is redesigning -- established under the Energy Policy Act of 1992 (EPA92) to displace government oil consumption -- provides credits to federal agencies toward meeting government oil use reduction goals if they purchase qualifying models. But the program has faltered because even though agencies were purchasing AFVs, the alternative fuel infrastructure is not in place to ensure actual use of alternative fuels.

The new DOE focus on EVs comes as a senior official with the Federal Energy Management Program (FEMP) has advised Congress that, although the federal government is meeting many of its energy reduction goals, in FY2008 the rate of progress decreased significantly. FEMP is leading the effort under DOE's Office of Energy Efficiency and Renewable Energy (EERE), with DOE officials and consultants working to increase the number of EVs in an attempt to jump start the new program direction.

The EVs are also seen as a way for government agencies to attain energy reduction requirements under more recent laws, such as the 2007 energy law, and a recently signed presidential executive order calling on federal agencies to set GHG reduction targets and other sustainability goals, according to FEMP officials.

The push for EVs to be counted toward meeting AFV targets will start with hybrid-electric vehicles, move on to plug-in hybrid vehicles, and then to EVs once the technology becomes more commercial, which is expected to happen within the next few years as automakers introduce over a dozen electric-only vehicle models and extended-range hybrid models into the market. The strategy was partially underscored in an October 7th announcement by the administration that it had injected \$300 million from the American Recovery and Reinvestment

Act toward the federal government's effort to reduce U.S. oil dependence. The General Services Administration (GSA) is using the funds to purchase thousands of hybrid vehicles for leasing to agencies to help achieve the oil-reduction goal. A DOE briefing with industry and agency fleet managers on October 8th, the day after the announcement, focused on greater inter-agency cooperation to leverage expertise and experience in developing services for advanced vehicles and the infrastructure that will make EVs a viable option to eliminate fossil fuel use.

In seeking to recast the EPA92 AFV credit system -- which has been one of the longer standing programs in place to guide fleet managers' vehicle purchases -- DOE is seeking to design new metrics to measure fossil fuel savings that do not rely on old models for measuring alternative fuel use, according to officials. DOE is looking to move past the AFV credit system entirely, according to officials at the October 8th meeting. There are no credits given to hybrids or EVs under EPA92, but fleets can take credit for fuel use -- the thinking being that electric vehicles, especially EVs, will use less gasoline and other liquid fossil fuels.

36. As Hybrid Buses Get Cheaper, Cities Fill Their Fleets

Transit systems from New York to Taipei, and from Ames, Iowa, to Ann Arbor, Mich., are adding hybrid buses at a rapid clip. New York, by far, has the nation's biggest fleet of hybrid buses, which run on electricity and diesel fuel, with nearly 1,000 in all five boroughs, most in Manhattan. Although the initial cost is well above that of a conventional diesel-powered bus, hybrid buses emit less pollution and get far better fuel economy. They are quieter than old-style buses, and their ride is generally more comfortable (not accounting for the condition of city streets). Like the hybrid taxis that have become a common sight in New York, hybrid buses arrived during the last decade.

Transit officials faced pressure in the mid-1990s to clean up their bus fleet, which was a major contributor to air pollution on city streets. "We were looking at what to do to reduce bus emissions as quickly as possible that didn't have a major cost," said Joseph J. Smith, senior vice president for the department of buses for the MTA New York Transit Authority.

In 1998, the transit authority began using its first 10 hybrid-electric buses, costing \$1 million each; they became guinea pigs for what turned out to be a successful experiment. By 2001 the city had ordered another 125 and subsequently bought hundreds more. Today, New York has the largest fleet of hybrid buses of any city in the US — 850, out of a fleet of 4,500. And the price has dropped by half, although hybrid buses are still twice as expensive as conventional diesel buses.

The improvement in pollutants has been impressive. From 1995 to 2006, diesel particulate emissions dropped 97 percent, while emissions of nitrogen oxides dropped 58 percent per bus. The buses' performance has also been impressive. Each is expected to save the city 50,000 gallons of diesel fuel, compared with what would be consumed by a conventional bus, or a 45 percent improvement in fuel economy. The typical hybrid bus gets 4 miles per gallon whereas the average all-diesel bus gets about 2.75 m.p.g., Mr. Smith said.

Much of the fuel economy savings can be traced to new lithium-ion batteries which have been installed in the buses. Their early batteries, which were lead acid, cost \$20,000 and needed to be replaced every two to four years. The lithium batteries are expected to last six years, and the weight difference alone equals a 13 percent improvement in fuel economy. But those batteries are expensive, at \$60,000 each. The batteries mean that overall maintenance for New York's hybrid buses is more costly than for conventional diesel buses. However, the hybrid buses are

easier to fix — and most important, don't break down as often, which the department measures as "mean distance to failure."

The newest buses to make their appearance in the city are a pair of turbine-driven hybrids, the first of eight that will join the fleet. (Baltimore is also testing turbine-driven buses.) "It will revolutionize the way we do business in the garages," Mr. Smith said. "There is no oil, there's no transmission, there's no starter, there's no generator, no antifreeze for a radiator. When you have an inspection every 3,000 miles, you do not have to drain the oil or drain the transmission." Moreover, the bus will not need a filter to catch particulates; the filter normally requires changing every year.

Beyond hybrids, officials are looking to the next phase of alternative-fuel buses, which will be equipped with hydrogen-fuel cells. The first one will be tested by the city next spring, but Mr. Smith said he did not expect them to be commercially available for at least 15 years.

37. Edmonton Rethinks \$82M Plan to Cut Vehicle Emissions

The city is backing away from a proposal to spend \$82 million on energy-efficient vehicles and other changes to reduce the fleet's greenhouse gas emissions by 20 per cent within a decade. Instead staff is recommending \$4.5 million over the next eight years to buy hybrids or other green cars and trucks once vehicles need replacement, along with \$2.5 million on a fuel monitoring system, corporate services general manager David Edey announced.

While the city's sustainable fleet management plan had aimed to meet the city's goal of reducing greenhouse gases from its 4,250 vehicles 20 per cent by 2017, that target is now uncertain, he said. Most of the scheme's budget was aimed at eventually having hybrids make up 40 per cent of Edmonton's buses, but officials don't think this is necessary because the main environmental benefit from transit is luring commuters out of private vehicles, Edey said.

"For transit, we're saying the gain isn't getting the buses more efficient," he said. "The gain is getting people on the bus."

They're working on other improvements, such as increased use of ethanol, programs to teach employees to increase fuel efficiency and "right sizing" to buy the smallest vehicles that can do the job required, Edey said.

The city never came close to its previous target of cutting emissions 20 per cent below 1990 levels by 2008, seeing them rise about 17 per cent instead.

38. School Bus Company to Pay Penalties for Clean Air Act Violations

As part of a settlement for clean air violations, school bus operator First Student will commit to reduce idling from its nationwide fleet of 50,000 school buses, thereby reducing school children's exposure to diesel pollution and will also pay a fine of \$128,000 and perform environmental projects valued at over \$1 million.

First Student is one of the largest school bus companies in North America, transporting four million students in 40 states across the country. In 2008, an EPA inspector observed buses idling for lengthy periods of time at First Student school bus lots in both Conn. and R.I. Some buses were observed idling for up to two and a half hours prior to departing the lot to pick up school children.

Under the settlement, First Student will implement a national Training and Management Program to prevent excessive idling from its entire fleet of 50,000 school buses. Through this program, First Student will train its drivers to comply with state and local anti-idling regulations and to avoid excessive idling. First Student will require supervisors to monitor idling in school bus lots, post anti-idling signs in areas where drivers congregate, and notify the school districts it serves of its anti-idling policy.

In addition, First Student will outfit approximately 150 school buses in New England with EPA-verified crankcase filter and diesel oxidation catalyst systems. First Student also will install a GPS idling tracking system on approximately 400 buses. The crankcase filter and oxidation catalyst systems will reduce harmful particulate matter emissions from the engine between 20 and 30 percent and help reduce children's exposure to this pollution. The GPS idling tracking system will help First Student management identify and address buses that idle excessively.

Both Connecticut and Rhode Island have anti-idling regulations that are included in their "state implementation plans" designed to meet national air quality standards. Regulations in the state implementation plan are enforceable by the state and by EPA. The anti-idling regulation in Connecticut limits idling time to three minutes. In Rhode Island, the limit is five minutes.

Idling school buses consume about one-half gallon of fuel per hour. By reducing the idling time of each bus in its fleet by one hour per day, First Student would reduce its fuel use by 4.5 million gallons per year and avoid emitting roughly 100 million pounds of carbon dioxide per year.

39. I/M Programs in the News

a. Annual Vehicle Emission Testing Program Study Results Revealed

Motorist perception and awareness of Georgia's Vehicle Inspection and Maintenance Program, which is administered by Georgia's Clean Air Force (GCAF), was measured in the organization's 13th annual emission testing program study. Survey results reveal that motorists' perception of the program's environmental benefits increased significantly from 2008 on four points, including the program's role in helping Atlanta meet federal air quality regulations, providing better health for others and cleaner air for metro Atlanta, and allowing economic growth to continue in Atlanta as a result of better air quality. GCAF attributes this to its public awareness campaign on the program's role in environmental and personal health.

Other key survey findings include:

- 95 percent of motorists are aware that keeping their vehicle properly maintained can increase the likelihood of passing the emission test.
- 88 percent of motorists – up three percentage points from 2008 – say information on the emission testing program is easy to understand and convenient to obtain.
- Of the 69 percent of motorists who reported acceptance of the emission testing program, 46 percent believe the program is worthwhile because it helps metro Atlanta's air quality. In fact, the program estimates it will keep more than 4,700 tons of pollutants from entering the air in 2009.

- Regarding the overall emission testing experience, motorists were most satisfied with the convenience of the emission testing location and the short time in line (8.9/10), down slightly from 9.0/10 in 2008 but maintaining significant gains from 2007 in all areas, including the aforementioned, as well as testing personnel, time for test, hours of operation and overall test experience.

Awareness that GCAF recommends testing early fell to 55 percent.

The survey is part of an annual quantitative study that tracks the awareness and attitudes of motorists regarding Georgia's Clean Air Force and its vehicle emission testing program. In July and August 2009, 300 telephone and online surveys were administered to a random sample of motorists within the 13 metro Atlanta counties who are age 18 or older and own a model year 1985-2006 gasoline-powered car or lightweight truck.

b. Smog Check Technician Implicated In "Clean Piping" Scam

A technician at a California smog check shop fraudulently inspected and certified vehicles that would not have passed emissions tests on their own, according to state and local authorities. He worked at TNT Smog when the California Department of Consumer Affairs' (DCA) Bureau of Automotive Repair and the Santa Clara County District Attorney's office jointly conducted an undercover investigation into area smog check shops.

Technicians working at seven shops in Santa Clara County were arrested for using a process known as "clean piping" to falsely certify customers' vehicles that would not have been in compliance with state emissions regulations, according to the DCA. In most of the cases, a technician used a clean exhaust sample from another vehicle that would pass a smog check, while entering data for the vehicle for which the smog check was requested by its owner.

The shops charged as much as \$200 per vehicle to conduct smog checks. At some of the locations, vehicles were "tested" and "certified" without even being present, DCA said.

Investigations of each shop began at different times throughout the spring and were prompted by "suspicious data" submitted by the shops to state regulators. Arrest warrants were served on 12 smog check technicians after the results of the undercover operations were turned over to the D.A.'s office.

All technicians were convicted on felony charges of falsifying a certificate, and two who cooperated with the district attorney's office may be eligible for a reduced charge. Many of the sentences are a combination of a county jail term of one month to four months, along with community service.

c. Framingham Petroleum & Auto Suspended, Fined For Inspection Violations

After a Massachusetts state investigation unveiled fake emissions inspections, Framingham Petroleum & Auto Center will have its auto inspection license suspended for 30 days and will pay at least \$3,000 in fines. The business conducted 25 fraudulent inspections from January 1, 2008 to July 30, 2008. Essentially the inspection station placed stickers on cars that could not pass the emissions test by substituting another vehicle that could pass the test. If there is another violation, the auto center could serve an 11-month suspension and pay \$3,000 more in fines, or have its license completely revoked.

The Massachusetts Department of Environmental Protection also busted inspection stations in Everett, Lawrence, Methuen, Salem and Worcester.

d. Thousands of Polluting Ohio Cars Unaccounted For

Ohio cannot account for about 116,000 polluting vehicles since 2004, according to a review of the state's E-check vehicle emissions testing program that exposes a loophole in the law meant to reduce unhealthy emissions. The issue is what happens to cars that failed the initial test and whose drivers never returned for a follow-up test.

In the seven E-check counties in the Akron-Cleveland area last year, about 60,000 vehicles failed the test the first time, and about 48,000 passed a recheck or received a waiver. That leaves about 11,410 polluting cars and light trucks unaccounted for, the Akron Beacon Journal has reported. Similar numbers disappeared in the two previous years. The numbers were even higher in 2005 and 2004, when Dayton and Cincinnati areas were part of E-Check, adding up to about 116,000 missing vehicles.

Some of the vehicles might have been traded in or sold for parts, while others might have been sold and reregistered in non-E-check counties in Ohio.

The E-Check program began in late 1995 because the Akron-Cleveland, Cincinnati and Dayton areas failed to comply with federal limits for ozone. The program has since been dropped for Cincinnati and Dayton because their ozone pollution was less severe.

e. AirCare May Be Extended After 2011

Older vehicles currently must pass AirCare every two years, but that could end if the program is dismantled as scheduled at the end of 2011. But there's a chance the AirCare vehicle emission testing system may be extended and not scrapped as scheduled at the end of 2011. TransLink is about to hire consultants to review the program and estimate what air quality and health benefits would result if mandatory testing and upgrades of older vehicles were extended from 2012 to 2020.

The transportation authority had intended to wind down the program because the air quality benefits have been diminishing as new vehicles become cleaner burning. AirCare operations manager Dave Gourley said there's no major change in thinking but the review will check to see if there's a case for continuing the program. "We know there's probably going to be more vehicles on the road in the future and they're going to be cleaner," he said. "Are there meaningful benefits we can get by inspecting those older vehicles and having them fixed?"

Consultants will run computer models to project the impacts on regional air quality depending on whether AirCare continues or is dropped. There's no net cost to TransLink to run AirCare – the \$20 million per year in fees collected from motorists cover the entire program costs. New vehicles are exempt from testing for seven years, so AirCare now only applies to roughly 50 per cent of vehicles on the road.

Consultants must respond to TransLink's request for proposals by November 12 and Gourley said the results should be ready by March. The terms of reference notes air contaminants in the region have either decreased or stabilized, despite the Lower Mainland's growing population and rising number of vehicles on the road. "The gains achieved through the introduction of

emission control technologies must be maintained in the future to counteract continued population growth and to prevent degradation of air quality in the region," it says.

40. Utilities Pledge To Be Ready For Plug-In Autos

If electric cars plug in at rates hoped for by automakers in the coming years, there will be enough power to serve them, the biggest U.S. electric utilities industry group has vowed. The utilities have pledged to make sure the electricity is there on demand, to work with policy makers on tax rebates and customer financial incentives and to make it easy for consumers to charge up car batteries, according to the Edison Electric Institute.

Convincing Americans of the benefits of plugging in will be a big part of the utilities-automakers efforts, announced at a plug-in conference in Detroit. They will also try to convince consumers to charge up an electric vehicle's batteries at night when power is cheaper and easily available.

One of the biggest hurdles in electrifying the U.S. vehicle fleet is the need for standardization in plugging in. As electric vehicles (EVs) develop, they are expected to improve batteries, but keeping components standard from the start will help keep costs down and facilitate EVs expansion.

A recent report by PriceWaterhouseCoopers noted that the promise of electric vehicles depends on infrastructure development, environmental impact and government support. It cited the need for more government assistance to make EVs more affordable, particularly in the next few years. While U.S. President Barack Obama wants a million plug-in vehicles by 2015 in the United States alone, PriceWaterhouseCoopers estimated 600,000 to 700,000 vehicles are more likely by 2015.

If the extra load by consumers driving plug-in hybrid and purely electric vehicles increases afternoon peak demand, then more power plants and power lines will need to be constructed. Charging batteries at night will eliminate those capital costs.

Dallas-based Oncor, the biggest power delivery company in Texas, said its investment in wind energy will help power plug-in vehicles. Oncor and SCE each are installing "smart" meters that will give customers real-time pricing of power, proving to them that off-peak power demand cuts costs.

41. Costs of Plug-In Cars Key to Broad Consumer Acceptance

A new University of Michigan survey shows widespread consumer interest in buying plug-in hybrid electric vehicles (PHEVs). But the cost of the cars is much more influential than environmental and other non-economic factors as a predictor of purchase probabilities. The survey of a nationally representative sample of 2,513 adults age 18 and over was conducted between July and November 2008 as part of the Reuters/University of Michigan Surveys of Consumers. The findings were released at The Business of Plugging In: A Plug-In Electric Vehicle Conference in Detroit.

"The data provide strong evidence that a combination of economic and social incentives may be most effective in successfully introducing these vehicles," said economist Richard Curtin, director of the Reuters/University of Michigan Surveys of Consumers, conducted by the U-M Institute for Social Research.

The study was supported by funds from the Pacific Northwest National Laboratory and the U-M Transportation Research Institute. In addition to assessing the current state of knowledge and opinions about PHEVs, the survey addressed the willingness to pay for these vehicles given different cost and fuel savings scenarios.

Overall, when given no cost or fuel-saving estimates, 42 percent of those surveyed said there was at least some chance that they would buy a PHEV sometime in the future. The researchers then asked respondents to rate the likelihood of purchasing a PHEV under three different cost-scenarios, each time assuming they would save 75 percent in fuel costs compared to a traditional, gasoline-powered vehicle. With each successive doubling of the price of PHEVs, the probability of purchase fell by 16 percentage points.

On average, 46 percent of those surveyed said there was some chance they would purchase a PHEV that cost \$2,500 more than a traditional vehicle; 30 percent said there was a chance they would buy if the PHEV cost \$5,000 more; but just 14 percent said there was a chance if it cost an additional \$10,000.

When asked what they thought was the main advantage of a PHEV---reducing money spent on fuel, reducing vehicle emissions or reducing dependence on foreign oil---54 percent reported that reducing dependence on foreign oil was the main advantage.

Surprisingly, only 31 percent thought reducing money spent on fuel was the main advantage, even though the price of gas was high during the time the survey was conducted. When the survey started in July 2008, gas prices were near their all-time peak level (\$4.28 per gallon) and then fell sharply during the period of data collection. But the researchers found no relationship between PHEV purchase probabilities and the price of gas.

42. Agency Weighs Metrics for Assessing Plug-In Hybrids' Fuel Economy

EPA is developing a rule to establish metrics for defining the fuel economy of plug-in hybrid vehicles and is weighing approaches that include many stakeholders' preference for a consumption-based metric that would, compared to the conventional miles per gallon (MPG) metric, more accurately reflect the comparative operating costs of plug-ins as the cars reach unprecedented fuel economy ratings.

The agency is reviewing options for providing consumers with one or more new metrics to best inform their decisions on purchasing plug-in hybrids, in addition to statutory requirements to present all vehicles' fuel economy in a MPG format.

The traditional MPG approach presents efficiency based on how far vehicles can drive on one gallon of fuel. A consumption-based metric would present fuel economy for plug-in hybrids in a format of how many gallons of fuel are necessary for the vehicles to travel 100 miles -- an approach that vehicle makers, consumer advocates and others believe presents a more linear, accurate metric on fuel used and the associated costs.

The agency in its recently proposed greenhouse gas standards for light-duty vehicles first announced it would seek comment and "engage in extensive public debate" on fuel consumption and other "appropriate" consumer metrics as part of a new labeling rule initiative for plug-in hybrids and other vehicles.

Since the late 1970's, EPA fuel economy estimates have been displayed on window stickers of all new cars and trucks. Congress in the 2005 Energy Policy Act required the agency to revise its fuel economy labeling to better reflect a variety of issues that affect fuel economy in order to avoid overly optimistic MPG ratings. The agency finalized those changes to the fuel economy labeling process in a 2006 rulemaking. During that 2006 rulemaking process, EPA received comments from vehicle manufacturers and consumer advocates arguing that the consumption-based metric might be more "meaningful" to consumers than the current MPG metric. "The reason is that [the] fuel consumption metric directly measures the amount of fuel used and is thus directly related to cost that consumers incur when filling up," according to the recent GHG standard proposal, which also points out that -- since the MPG metric is inversely related to fuel consumption and cost -- as MPG values achieved by vehicles climb higher, the relative impact of those higher fuel economy ratings decreases.

43. Industry Expresses Concern over EPA's Fuel Additive Study

Petrochemical industry representatives are raising concerns about an EPA study showing significant risks posed by the gasoline additive ethyl tertiary butyl ether (ETBE), signaling concern about the agency's pending assessment of the more widely used methyl tertiary butyl ether (MTBE), which shares similar characteristics to ETBE.

At an October 7th listening session, industry representatives urged EPA to drop suggestions that ETBE may pose cancer risks in part due to indications that MTBE is carcinogenic. "The assessment draws inference from MTBE and [tertiary butanol, an ETBE metabolite] carcinogenicity studies but fails to consider authoritative assessments of these data that conclude these substances are a low human cancer concern," said Marcy Banton, a toxicologist with LyondellBasell -- which may face significant cleanup liability over both chemicals.

Refiners and other companies produced large quantities of both additives to comply with a Clean Air Act mandate to blend additives into gasoline to reduce vehicle emissions. Lyondell and others stopped producing ETBE in 1996 when a federal tax incentive expired. After municipalities reported widespread MTBE contamination, Congress, in the 2005 energy bill, banned MTBE, eliminated the oxygenate mandate and replaced it with a renewable fuel mandate. But dozens of state and municipal officials were pursuing damages claims against additive manufacturers and gasoline suppliers to clean up contaminated drinking water in hundreds of jurisdictions around the country.

In 2008, Lyondell, together with ExxonMobil, declined to join a \$422 million settlement with several other energy companies to settle cleanup and other costs to address 59 separate cases filed on behalf of more than 550 plaintiffs. As a result, the non-settling companies could face significantly higher cleanup liability than settling companies, costs which could grow even more once EPA completes its upcoming MTBE risk assessment. Recently, for example, a federal jury ordered Exxon to pay New York City officials \$105 million to construct drinking water treatment facilities (see story below), while settling parties had previously agreed to pay \$15 million.

Lyondell was also one of the MTBE producers that led unsuccessful industry lobbying in Congress in 2005 to exempt the chemical's manufacturers from some damages claims pushed by state and municipal officials. The legislative exemption failed after a draft EPA assessment that found the chemical is a "likely" carcinogen became public. EPA has never finalized the 2005 draft MTBE risk assessment but, according to EPA's Web site, the agency is scheduled to complete internal review of the draft in the first quarter of fiscal year 2010 and finalize a draft assessment in the fourth quarter of FY10.

For now, though, Lyondell officials are challenging EPA's August 20th draft ETBE assessment, which details many similarities between the two chemicals. In its draft, EPA finds likely widespread exposure to both additives. While the draft acknowledges that there is not specific data on ETBE associated with leaking underground storage tanks, it cites a 2004 study of 868 leaking underground fuel storage tanks in the Los Angeles area, where researchers "detected oxygenates roughly in proportion to their usage (e.g., MTBE at 82.7% and ETBE at 8.9% of the leaking sites)."

According to EPA's draft assessment, the two chemicals' physical properties make them "likely to travel farther and faster in groundwater than other gasoline constituents." On the chemical's toxicity, the agency did not calculate a cancer slope factor for ETBE due to limitations of the study on which it based its cancer assessment, but indicates that "Available data indicate there is suggestive evidence of carcinogenic potential following exposure to ETBE." The agency also recommended a safe exposure standard to limit non-cancer inhalation risks of 0.0057 milligrams per cubic meter of air, adding that "Apart from potential health concerns, the presence of MTBE in drinking water is associated with an unpleasant odor and taste that is unacceptable for many people even at relatively low concentrations, and ETBE has odor and taste thresholds that allow ETBE to be detected at even lower concentrations in water or air."

44. ExxonMobil Ordered To Pay \$104.7 Million in MTBE Case

A US District Court in Manhattan found ExxonMobil Corp. liable for contaminating New York City's ground water with methyl tertiary butyl ether (MTBE) and awarded the city \$104.7 million in damages, New York City officials said. On October 19th, the New York City's Law Department said a jury awarded the compensatory damages after an 11-week trial in a product-liability case. The city sued ExxonMobil for the costs of removing MTBE from drinking water wells in southeast Queens.

The case was tried before Judge Shira Scheindlin of the US District Court for the Southern District of New York. The trial focused on six water wells.

A spokesman for ExxonMobil downstream issued a statement saying the company was disappointed with the decision, and it will consider all its legal options.

"As we've maintained throughout, our service stations were not the source of the MTBE contamination" at the six wells, ExxonMobil said. "We do not believe we should be required to compensate the City of New York for someone else's contamination."

Several other large oil companies previously settled claims from New York City against them for a total of \$15 million.

45. Oil Firms Challenge California's Unfinished Low Carbon Fuel Rule

Major oil companies are charging that unfinished portions of the California air board's low-carbon fuel standard (LCFS) will undermine implementation and compliance, with only three months remaining before some requirements take effect. The dispute underscores in part the complexity and controversy over the state's efforts to calculate the "carbon intensity" of certain fuels, including renewable diesel and certain biofuels.

But board officials are defending the status of the regulations, saying that only reporting requirements begin in 2010 and that several other key provisions cited by oil companies will be finalized within a matter of months, providing more than adequate time for compliance.

State and federal regulators, numerous fuel providers and other key stakeholders are closely following the state LCFS, because it is a model for dozens of states and regions in the country, and is expected to impact compliance with the federal government's renewable fuel standard (RFS). Both the LCFS and RFS are considered key programs to reduce greenhouse gas (GHG) emissions. Apart from the oil industry's concerns, California's LCFS is under ongoing fire from the ethanol industry, which claims state regulators are advancing a premature and scientifically unsound penalty on corn-based ethanol, in terms of its indirect land-use and lifecycle GHG emission impacts.

The California Air Resources Board (CARB) in April adopted the LCFS, which requires fuel suppliers to reduce the carbon intensity of gasoline and diesel 10% by 2020, beginning in 2011, through a variety of compliance avenues. Some of these include ramping up the use of biofuels and renewable diesel, using cleaner crude oil, and investing in programs that increase the use of electric vehicles. While suppliers must begin reporting the types of fuels they are selling in California on January 1, 2010, compliance with the specific standards in the regulation does not begin until 2011.

However, a number of key provisions of the regulations were not completed at the time CARB adopted the LCFS in April. At that time, the board directed its staff to fill in these requirements over the following months, based on compilation of necessary technical data and other information. Since April, CARB has released two revised versions of the regulation for "15-day" comment periods. The most recent version, issued last month, requested stakeholders to provide written comments by October 8th.

Individual oil companies and a major petroleum industry organization argue in these new responses that CARB has failed to complete vital pieces of the regulation, including: a carbon intensity value for soybean-based biodiesel; clarification about the process for determining which crude oils are high in carbon intensity; and a mandatory electronic-reporting tool.

But CARB officials are defending the current status of the LCFS and explaining that some of the answers the industry is looking for will be based on its own research responsibilities and submissions to CARB.

"We are continuing to work on carbon intensity values -- both indirect and direct -- for various fuel pathways," a CARB spokesman said. "The only value for which we committed to do as part of the current regulatory effort is for biodiesel and renewable diesel, particularly the indirect land-use component." This work is ongoing with the University of California-Berkeley, "and we expect to release values within the next month for comments."

Regarding completion of carbon intensities for fuel pathways for inclusion in the look-up tables, "staff has completed 37 for gasoline alternatives and 25 for diesel alternatives," the spokesman said. "The soy-biodiesel pathway is not completed, but will be by January 2010." In all, "sufficient pathways are now included in the look-up tables" for regulated parties to comply.

Further, the CARB spokesman emphasized that the LCFS allows for new pathways to be established and included in the regulation as it is implemented. "It was never intended that the regulation would be limited to the pathways included as part of the initial adoption."

Regarding carbon intensity for high carbon-intensity crude, “since no application has been made, or sufficient data made available, staff has not developed a value,” the spokesman said. “Again, it was envisioned that applicants wanting to bring high-carbon intensity crudes to California would apply to CARB to have the carbon intensity of the specific crude qualified” under the LCFS methods.

In all, the final LCFS regulation “should be through the administrative process and formally adopted by January 2010, and since the first year, 2010, is reporting only, this should be sufficient,” the spokesman added.

46. EPA To Issue Strict Rules for U.S. Power Plant Air Toxics

The U.S. Environmental Protection Agency has agreed to adopt rules reducing toxic air pollution from the nation’s coal- and oil-burning power plants, by November 2011, according to a settlement agreement reached in a federal lawsuit brought against the Agency by a coalition of public health and environmental groups. The settlement has been lodged in the United States District Court for the District of Columbia.

Attorneys at Chesapeake Bay Foundation, Clean Air Task Force, Earthjustice, Natural Resources Defense Council, Southern Environmental Law Center, and Waterkeeper Alliance filed the lawsuit last December on behalf of their organizations and the American Nurses Association, Conservation Law Foundation, Environment America, Environmental Defense Fund, Izaak Walton League of America, Natural Resources Council of Maine, The Ohio Environmental Council, Physicians for Social Responsibility, and the Sierra Club. The lawsuit was based on EPA’s failure to meet the Clean Air Act’s deadline for issuing regulations controlling toxic air pollution from power plants.

Under the Clean Air Act, EPA was required to control power plants’ toxic air emissions by December, 2002. Instead the Bush administration asked Congress to eliminate that requirement. Unable to win Congressional support for that request, the Bush EPA tried to declare that the required pollution controls were simply not necessary or appropriate. The federal appeals court in D.C. unanimously rejected that attempt in February 2008, saying that the power industry remained subject to the requirement to control the air toxics it emits, and EPA remains responsible for issuing rules governing those emissions. Following that court victory, the environmental and public health groups above filed a lawsuit to compel EPA to issue its long overdue toxic air regulations. That lawsuit was resolved with the consent decree committing EPA to enforceable schedules for proposing and adopting the required rules.

Coal-burning power plants are the nation’s largest unregulated source of mercury pollution, and also emit enormous quantities of lead, arsenic and other hazardous chemicals. Some 1,300 coal fired units at existing power plants spew at least 48 tons of mercury, alone, into the air each year. Significant human health and adverse effects on wildlife are associated with these emissions.

For example, much of the mercury and other metals in power plant plumes fall out within 100 miles of the source, and mercury accumulates up the food chain in fish and in the animals that consume it. Mercury exposure is linked to serious neurological disorders in humans, and reproductive and neurological effects in animals. According to the Centers for Disease Control and Prevention, eight percent of American women of childbearing age have mercury in their

bodies at levels high enough to put their babies at risk of birth defects, loss of IQ, learning disabilities and developmental problems.

47. US Moves To Limit Industrial Greenhouse Gas Emissions

The US government has taken a harder line on greenhouse gas emissions produced by factories, refineries and power plants by mandating energy efficient means for expansion, the Environmental Protection Agency said. EPA Administrator Lisa Jackson she would use the agency's existing regulatory power to clamp down on large polluters by requiring them to use the greenest technology possible if they want a permit to build a new site or significantly modify an existing site.

Under the authority of the Clean Air Act -- the law defining the EPA's responsibilities for protecting US air quality -- "we can begin reducing emissions from the nation's largest greenhouse gas emitting facilities without placing an undue burden on the businesses that make up the vast majority of our economy," said Jackson.

Jackson, speaking in California, described it as "a common sense rule that is carefully tailored to apply to only the largest sources -- those from sectors responsible for nearly 70 percent of US greenhouse gas emissions."

Jackson's announcement puts pressure on members of Congress resistant to President Barack Obama's "cap and trade" proposals aimed at rewarding the most energy efficient industries and punishing the big polluters. The Obama administration and its supporters want the US Senate to approve a measure limiting greenhouse gas emissions ahead of the upcoming United Nations climate change conference in Copenhagen in December.

Jackson said the proposed rules target large emitters, while small businesses "such as farms and restaurants, and many other types of small facilities, would not be included in these requirements."

Refineries, coal power plants and large factories emitting at least 25,000 tons of greenhouse gases per year would be affected by the proposal, Jackson said. The rules would focus on six greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, Jackson said.

The United States is the world's second largest carbon dioxide emitter after China. Together, these two countries account for 40 percent of global emissions.

48. U.S. 2009 Carbon Emissions to Fall 5.9 Percent: EIA

U.S. emissions of carbon dioxide, the main greenhouse gas, should fall 5.9 percent in 2009 as the recession cuts electricity and transportation fuel demand, the government said in a new monthly forecast. Demand for coal, which emits about twice as much carbon dioxide as natural gas per unit of energy generated, should fall more than 9 percent in 2009 on the economic downturn, said the Energy Information Administration, the statistics arm of the Department of Energy, in its short-term forecast.

Heavy industry demand for electricity should fall 11 percent in 2009 as manufacturing declines and raw steel production is expected to drop 40 percent.

Many power generators are switching to burning natural gas as states crack down on carbon emissions and as Congress mulls climate legislation, which also pushed emissions down.

Weaker demand for transportation fuels, especially jet fuel and diesel for trucks, should account for 30 percent of the annual decline in carbon emissions, the EIA said.

Next year emissions should begin creeping up. The EIA said the projected recovery in the economy should help push emissions up 1.1 percent in 2010.

49. Honda Continues To Lower Its Environmental Impact

Honda Motor Co. continued to lighten its environmental footprint in North America, through companywide changes including improved vehicle fuel efficiency, the Japanese carmaker said in a new report. The recession and resulting drop in vehicle sales also helped lower Honda's environmental impact.

However, the economic slowdown increased the amount of carbon emissions per vehicle produced, the company's fifth annual North American environmental report said. "It's about manufacturing intensity," Honda spokesman Marcos Frommer said. "The more vehicles we can produce, the more efficiently we can reduce energy. So when we reduce that (production), our per-unit intensity increases."

Honda, whose U.S. and North American headquarters is in Torrance, said it reduced its emissions of climate-changing carbon dioxide in fiscal year 2009, which ended March 31. Honda continued to make progress in its goal to reduce CO₂ emissions by next fiscal year to 10 percent below its 2001 emissions. For automobiles, Honda's emissions were already down 8.6 percent below 2001 levels, the report says.

The past fiscal year saw Honda taking such environmentally-friendly steps as introducing a new version of its Insight gas-electric hybrid car and opening two new North American factories that drastically limit waste and avoid adding to landfills. For example, spent molding sands from aluminum die casting at Honda factories are sent to cement kilns as a substitute for limestone.

Because of vehicles with high gas mileage, Honda's U.S. corporate average fuel economy, known in the industry as CAFE, for model year 2008 rose to 30.3 mpg, up 3.8 percent from the model year 2001 baseline.

50. Air Quality Improvements May Be a Factor in Fewer Ear Infections

Strides in improving the nation's air quality over the past ten years may be a factor in fewer cases of ear infections (otitis media) in children. These results are according to new research presented at the 2009 American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF) Annual Meeting & OTO EXPO, in San Diego, CA.³

The study, which used National Health Interview Survey data of 120,060 children from 1997-2006, measured how many instances occurred in the previous year for three disease conditions: frequent otitis media (FOM, 3 or more ear infections in the previous 12 months), respiratory

³ Air Quality Improvements Over The Last Decade May Be A Factor In Fewer Ear Infections. ScienceDaily. Retrieved October 24, 2009, from <http://www.sciencedaily.com/releases/2009/10/091007124356.htm>

allergy, and seizure activity. These numbers were cross-referenced with Environmental Protection Agency (EPA) air quality data over the same period. The authors discovered that as air quality improved, the number of cases of FOM decreased.

The authors believe their research has both medical and political significance. They believe it confirms the benefit of the revised Clean Air Act of 1990, which gave the EPA more authority to implement and enforce regulations reducing air pollutant emissions. They also believe it shows, on a large population-based scale, that these improvements may have direct benefit on health quality measures such as otitis media. Otitis media is one of the most common illnesses among children, with annual direct and indirect costs in the \$3-5 billion.

51. U.S. Officials Discuss Electric Vehicles, Other Clean Energy Efforts with Chinese

Officials from the U.S. Department of Energy discussed cooperation on energy, electric vehicles, and other clean technologies with their Chinese counterparts during a five-day trip to China, U.S. Assistant Secretary of Energy David Sandalow said at a September 30th roundtable discussion with journalists. The meetings, which ran from September 26th to 30th, included a U.S.-China Electric Vehicles Forum in Beijing on September 29th.

As the biggest energy consumers and carbon emitters, China and the United States have a “strong shared interest in putting millions of electric vehicles on the road” to decrease dependence on foreign oil and to help reduce global warming, Sandalow said. More broadly, Sandalow called for the two countries to cooperate on clean energy technologies to reduce carbon emissions and to create new “green” jobs.

Referring to electric vehicles—including cars, bikes, and other modes of transportation—Sandalow said the “scale of the Chinese industry is striking” and the “ambition of the Chinese government is impressive in this area.” He said the two countries are discussing setting technical standards for electric vehicles, creating policy incentives, and conducting joint projects.

U.S. officials also participated in an Energy Policy Dialogue and an Oil and Gas Industry Forum, both in Qingdao in the coastal province of Shandong. In meetings with Chinese officials such as Wang Gang, minister of science and technology, U.S. officials discussed the next steps toward creating a joint Clean Energy Research Center, which U.S. Energy Secretary Steven Chu agreed to during a trip to Beijing in July. The United States and China have committed to spending \$7.5 million each on the center, which will have separate locations in each country, likely within existing institutions, according to environmental officials at the U.S. embassy in Beijing.

The center will help scientists, engineers, and researchers to share information on clean energy technologies. The center has targeted clean energy vehicles as a priority, DOE officials said.

52. “Mystery” Ceramic Could Lead to Cheaper, Stronger Hydrogen Fuel Cells

A team of researchers at Georgia Tech has developed a new high-tech ceramic material that could make solid oxide fuel cells less costly and less finicky, and much more durable and efficient. The material is called Barium-Zirconium-Cerium-Yttrium-Ytterbium Oxide, known as BZCYYb for short.

Solid oxide fuel cells are of interest because they can generate energy without the need for an expensive catalyst such as platinum, which is typically used in hydrogen fuel cells. While nanotechnology is enabling the development of hydrogen fuel cells that use less platinum, with BZCYYb the prospects look good for ditching the precious metal entirely in favor of more sustainable technology—if solid oxide systems can be developed in a commercially viable form.

Heat is one problem standing between solid oxide technology and the mass market. In conventional solid oxide fuel cells, the anode (the part that conducts incoming electric current) is a composite that includes a ceramic called yttria-stabilized zirconia (YSZ). YSZ excels as a catalyst and a conductor, but researchers at Georgia Tech note that it loses conductivity at low temperatures, requiring an operating temperature as high as 1,000 degrees Centigrade. Sulfur contamination and carbon deposits are two other significant problems with YSZ anodes. To counter these three factors, solid oxide fuel cells that use YSZ have high complexity systems that employ low sulfur fuel and exotic heat-tolerant materials, leading to higher costs, less durability, and lower efficiency.

BZCYYb resolves the heat problem through its ability to retain conductivity at temperatures as low as 500 degrees centigrade. It also resists carbon deposits and it tolerates relatively high concentrations of sulfur compared to YSZ. Researchers have not yet pinpointed the factors behind BZCYYb's clean-running capabilities, but they believe that the material's more powerful catalytic performance could be enabling it to act on sulfur and hydrocarbons more effectively. With these three problems resolved, BZCYYb could lead to the design of more simple, compact, and cost-effective solid oxide systems. Potentially BZCYYb could be used to coat conventional YSZ anodes, or replace them entirely.

Solid oxide technology is one among several avenues that researchers are exploring to make fuel cells less expensive and more light, compact, simple, and flexible. For example, the company Full Cycle Energy has licensed a non-platinum fuel cell based on a high performance alkaline membrane that enables it to use biofuels in addition to hydrogen. The Department of Energy is pitching in with millions in research funds, and the U.S. military is eager to adopt more robust, portable power sources.

53. U.S. To Track Greenhouse Gases For First Time

The U.S. government will begin requiring big companies to monitor and report greenhouse gas emissions, a move that could make it easier for federal regulators to cut emissions if Congress does not pass a climate change bill. The U.S. Environmental Protection Agency said its new reporting system will help it understand where greenhouse gas emissions originate and ultimately help reduce emissions.

"This is a major step forward in our effort to address the greenhouse gases polluting our skies," said EPA Administrator Lisa Jackson. "The American public, and industry itself, will finally gain critically important knowledge and with this information we can determine how best to reduce those emissions."

The EPA said its reporting system will cover 85 percent of total U.S. greenhouse gas emissions spewed by roughly 10,000 facilities. An oil refinery, power plant or other facility would have to report its polluting data if its carbon dioxide emissions totaled at least 25,000 tons a year. A 25,000 ton annual carbon dioxide threshold is comparable to the emissions from 131 rail cars of coal consumed, 58,000 barrels of oil consumed, or the emissions from the annual energy use of about 2,200 homes.

The global warming pollutants covered under the EPA's reporting system include carbon dioxide, methane, nitrous oxide and hydrofluorocarbons.

The new reporting system takes effect in January 2010 and large emitters are required to file their annual emissions data in 2011. Vehicle and engine manufacturers outside of the light-duty sector will begin phasing in their emissions reporting with the 2011 car model year, the agency said.

54. Port Authority Offers Clean Air Incentives

Commissioners for the Port Authority of New York and New Jersey have authorized nearly \$9 million for a pair of initiatives to improve air quality around its port.

- Under one, the Port Authority will reimburse ocean vessel operators up to 50 percent of the cost differential between high-sulfur and low-sulfur fuel. The vessels, which can be half the size of a football field, also must participate in a speed reduction program. The ocean-going vessel program will cost \$6.36 million.
- Under the second program, port tenants replacing cargo-handling equipment with new equipment that meets federal on-road air emission standards will be reimbursed for 20 percent of the cost. About 125 pieces are expected to be replaced through the \$2.24 million cargo equipment upgrade program.

Port Authority chairman Anthony Coscia said they are the first clean air initiatives of their kind among ports on the East Coast.

55. Toyota Plans \$1 Billion Marketing, More Hybrids

Toyota Motor Corp is preparing a \$1 billion marketing campaign to boost U.S. sales in the fourth quarter, while also expanding its line of hybrid models under the Prius name, the company has announced. The \$1 billion will include a media campaign, as well as buyer and dealer incentives, including sweeteners for leasing.

Toyota President Akio Toyoda and top U.S. company executives reportedly told Toyota and Lexus dealers of the plans at an annual dealers meeting in Las Vegas. The \$1 billion marketing and advertising plan is 30 percent to 40 percent more than Toyota typically spends in the quarter. The plan includes subsidizing leases and loan rates, offering other customer incentives and helping pay for dealer ads.

The plan comes as Toyota struggles with its worst downturn since it was founded in 1937 and is expecting to report a loss for the second straight fiscal year.

Toyota landed three models among the top 10 sold in the recent "Cash for Clunkers" incentive program by the U.S. government.

Word of the media blitz comes less than a week after General Motors Corp announced its own media campaign, in large part aimed at recapturing consumers who believe Toyota and other foreign automakers make better products.

Toyota executives in Frankfurt said the company planned to sell 500,000 to 600,000 hybrid vehicles globally by the end of 2009.

56. Retail Association and Clean Truck Coalition Partner to Improve Air Quality

The Retail Industry Leaders Association (RILA) has announced that it will form a partnership with the Coalition for Responsible Transportation (CRT) to expand efforts to reduce diesel emissions in and around our nation's ports. The partnership will leverage the market power of America's largest shippers to make further reductions in greenhouse gas emissions.

Founded in 2007, CRT has been an advocate for the implementation of practical and responsible solutions that reduce port truck pollution without disrupting the flow of commerce. CRT members include national shippers, ocean carriers, drayage providers and equipment manufacturers to which all have made substantial investments in cleaning up our nation's air quality. Since the launch of the LA and Long Beach Clean Truck Program, CRT member companies have deployed nearly 2,000 model year 2007 or newer trucks into drayage service in Southern California. These new clean trucks emit 80 percent fewer air pollutants than older trucks serving the port, have been privately financed by CRT members, and have been voluntarily deployed three years ahead of the port's deadlines.

CRT has also been involved in the development and implementation of industry-supported clean truck programs across the country including the ports of Oakland, Seattle, Tacoma and New York/New Jersey, with additional ports on the horizon.

RILA and its members actively pursue and promote environmental sustainability in numerous ways. In 2007, RILA launched the RILA Sustainability Initiative (RSI), a collaborative initiative designed to help leading retail companies meet and exceed environmental standards by pursuing environmentally sustainable activities and responsible business practices.

Both RILA and CRT are members of the U.S. Environmental Protection Agency (EPA) SmartWay Program. SmartWay is an innovative collaboration between the U.S. Environmental Protection Agency (EPA) and the freight industry, designed to increase energy and fuel efficiency while significantly reducing greenhouse gases and air pollution. RILA is also a member of SmartWay's Shipper Stakeholder Committee, which provides input toward the continued development of the program, and is a partner with EPA's Energy Star and WasteWise programs.

The partnership was formalized on September 22, at a meeting of the RILA Transportation & Infrastructure Committee meeting, held in Arlington, VA, and will be effective as of October 1.

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57. Japan Proposes Tougher Standards on Diesel Emissions From Off-Road Vehicles

On September 9th, Japan's Ministry of the Environment announced a proposal that would tighten diesel emissions standards for non-road mobile machinery and specialty off-road vehicles used for construction, farming, and other purposes. The proposed standards, which would be introduced in phases beginning in 2011, were released for a one-month public comment period, which runs through October 9th. The environment ministry issued the proposal together with the Ministry of Economy, Trade, and Industry and the Ministry of Land, Infrastructure, and Transport.

Final standards are expected to be issued in January 2010, with enforcement starting in early 2011, according to Hideya Yokoyama, an official with the ministry's Automobile Environment Division.

The standards call for cutting particulate matter emissions by 88 percent to 92 percent, with reductions varying by the vehicles' power output. Emissions of nitrogen oxides would be cut 8 percent to 44 percent, and hydrocarbons would be cut 30 percent to 73 percent. Carbon monoxide limits would not change. The reductions would be measured against current standards and would be phased in between 2011 and 2013.

Based on data from a ministry study conducted in 2006, Yokoyama said specialty vehicles accounted for 18 percent of Japan's total particulate emissions in fiscal 2006, which ended in March 2007, and 31 percent of nitrogen oxides. He said the ministry has not updated the study, so the figures are the latest available.

Japanese standards are compatible with standards issued by the United Nations Economic Commission for Europe working party on pollution and energy (UN ECE/WP29), released August 17, 2009, Yokoyama said.

58. Shanghai Tightens Up Vehicle Emissions Standards

Oil prices in Shanghai will increase beginning next month to meet new emission standards that are on par with the EU's Euro IV. Shanghai will become the second city in China to impose the State IV standards, coming after Beijing.

The oil that is up to standards will soon be available at Sinopec and PetroChina stations as the two State-owned oil giants have well-coordinated distribution systems. The new gas will have about 90 percent less sulfur, a major pollutant, thus contributing to air quality improvement.

59. Japan Sets Standards for Fine Particulate Matter to Protect Health

On September 9th, Japan's Ministry of the Environment set the country's first atmospheric tolerance standards for fine particulate matter to protect public health. Fine particles—those 2.5 microns in diameter or smaller (PM-2.5)—are emitted from diesel-powered engines, factory chimneys, and other industrial sources, and have been linked to various illnesses.

Japan's new standards set a 24-hour limit of 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and an annual average limit of 15 $\mu\text{g}/\text{m}^3$, the ministry said. It said levels must be measured at locations other than industrial areas or along major traffic arteries where people do not live.

The ministry did not set a deadline for meeting the standard but said only that levels should be lowered as soon as possible.

PM-2.5 measurements should be conducted according to the U.S. Environmental Protection Agency Federal Reference Method. Japan has not previously collected PM-2.5 data.

60. Toyota Launches New Hybrid, Honda Warms to Electric

Toyota Motor Corp is ramping up its push on gasoline-electric hybrids, launching a new model in Japan and taking on up-and-coming rival Hyundai Motor Co in its Korean home market with

its flagship Prius. Looking a step beyond hybrids, the head of Honda Motor Co said he was considering launching electric vehicles in the United States, Europe and Japan, indicating a shift in the strategy of Japan's No.2 car maker for zero-emission cars.

Toyota, the world's largest automaker, said it aims to sell 36,000 units a year of its new Sai hybrid sedan in Japan, taking another step toward its goal of selling 1 million hybrid vehicles annually worldwide soon after 2010. The Sai sedan, which goes on sale in Japan in December with a base price of 3.38 million yen (\$37,290), is the second hybrid-only model under the Toyota brand after the less expensive Prius, and is a repackaged version of the Lexus HS250h hybrid. Toyota is still miles ahead of competitors in the fast-growing hybrid field, which has enjoyed tailwinds especially in Japan thanks to generous subsidies and reduced taxes on cleaner cars. It expects to sell 500,000 to 600,000 hybrid vehicles globally this year, while facing a short-term battery supply bottleneck for anything further.

Honda, whose Insight hybrid is trailing far behind the Prius, has been aiming to leapfrog the competition in the next generation of zero-emission technology by focusing on the development of hydrogen fuel-cell cars. But faced with slow progress in setting up hydrogen fuelling stations, Honda has been forced to take a closer look at plug-in electric cars, which it has until recently dismissed as a short-range option that uses too many expensive batteries. Chief Executive Takanobu Ito, who had previously acknowledged Honda may need pure electric cars to meet tough regulations in California, told an industry seminar he would consider launching electric cars for Europe, Japan and other markets as well.

Toyota and Nissan Motor Co have announced plans to offer plug-in electric vehicles globally by 2012, while General Motors' Chevrolet Volt is expected to hit showrooms next year.

"There is no change to my view that hydrogen fuel-cell cars will in the end be proven the best," Ito said. "(But) electric vehicles will also be a core option for cars in the future," he added.

Toyota's Sai has a listed mileage of 23 km/liter (54 mpg), or twice that of a comparable gasoline car, chief engineer Shigeru Nakagawa told a news conference. Toyota said it had no plans to export the Sai, which will be built by unit Toyota Motor Kyushu in southern Japan and was derived from a Japanese character meaning talent and coloration.

Toyota also launched its brand in South Korea, a market dominated by Hyundai and affiliate Kia Motors Co, first with the Prius and Camry hybrids, as well as the RAV4 sports utility vehicle and non-hybrid version of the Camry, its most popular sedan. Toyota expects to sell a combined 500 vehicles per month initially in South Korea, and aims to raise that to a still-modest 700 units beginning in 2010. "The introduction of the Toyota brand into South Korea is aimed to meet the diversifying needs of consumers in this growing market," Toyota Executive Vice President Yukitoshi Funo told a news conference.

Hyundai has been grabbing market share globally from Toyota and other major automakers, winning over customers with its line of cheap, fuel-efficient models and catchy marketing campaigns. In July, Hyundai launched its first hybrid in the South Korean market, a liquefied petroleum gas-electric vehicle, and is due to launch its first gasoline-electric hybrid, a version of the flagship Sonata, in the latter half of 2010.

61. Mass Market Electric Cars Due In South Korea In 2011

The government plans to support local carmakers in developing core technologies for electric cars as part of efforts to speed up mass-production of the eco-friendly vehicles, according to Korean officials. The plan calls for a full-scale production of electric cars in the second half of 2011, two years earlier than its original target.

The measures were outlined during a meeting chaired by President Lee Myung-bak at a research center of Hyundai Motor Co. in Namyang, Gyeonggi Province.

"Governments around the world have been encouraging carmakers to produce electric cars as they lift regulations on carbon emission and to better deal with skyrocketing oil prices," Cho Seok, a deputy minister of knowledge, said. "Korea also has to join the move and become a leader in the global market for electric cars in the future," he told reporters.

The United States and the European Union plan to enforce tougher greenhouse emission standards for cars in the near future and also have been supporting carmakers developing electric cars, officials said. Japan unveiled the world's first mass produced electric vehicle, called the i-MiEV, in July.

The new green standard would make it difficult for Korean car exporters to sell their cars in a market that requires less carbon emission, they added.

The Korean government has already announced its plan to inject about 400 billion won (\$342.6 million) by 2014 to develop high-performance batteries and other related systems needed to manufacture electric cars. "With the plan, local carmakers will be able to grab 10 percent of the global market share for electric cars by 2015. By 2020, 10 percent of all small-sized cars sold in Korea will be electric cars," Cho said. The measures will help Korea become one of the top four electric carmakers in the world, he added.

Starting in the second half of 2011, the government will promote the sale of electric cars by granting subsidies for state agencies. It will also consider offering tax incentives for buyers of electric cars.

The government also plans to have a legal framework for electric cars. Currently, some local carmakers like CT&T manufacture low-speed, neighborhood electric vehicles that run up to 60 kilometers per hour. The law does not allow electric cars to hit the road citing safety reasons. The pending bill at the National Assembly, calls for allowing the operation of low-speed cars on roads. "It would be hard to have the current electric cars on 88 expressways, but they can be used in small cities," Cho said.

The government plans to test operation of electric cars on normal roads in the second half of the year. The deputy minister did not, however, go in detail with the government's plan on developing infrastructure for electric cars.

62. ASEAN Gearing Up To Be Global Green Auto Hub

Southeast Asia is gearing up to become a global hub for the production and sale of environmentally friendly cars, according to a Thai deputy cabinet minister. Trade ministry officials from members of the Association of Southeast Asian Nations (ASEAN) assigned regional industry bodies to draft common guidelines for green cars, hoping to leverage Thailand's role as an auto manufacturing hub and large car markets in Indonesia and Malaysia.

"ASEAN's aim is to be a global auto production base," Deputy Commerce Minister Alongkorn Polabutr told a news conference. "As Thailand is already the Detroit of Asia and Malaysia and Indonesia are huge auto markets, we should all cooperate to develop the auto industry."

The officials assigned automotive industry groups in ASEAN, such as the ASEAN Automobile Federation, "to come up with the future guidelines for green and clean vehicles," Alongkorn said. Thailand was already pursuing this route by promoting a policy for a flexible fuel vehicle, which can use a mixed fuel with up to 85 percent ethanol and 15 percent gasoline, he said. "We want our cars to contribute to the reduction of greenhouse gas," he said.

Commerce Minister Porntiva Nakasai said ASEAN trade ministry officials, at a meeting with auto industry representatives, urged governments to help offset falling sales by speeding up tariff cut commitments under AFTA, the region's free trade area agreement, providing loans to SMEs and speeding up electronic customs.

63. Shipping Key Source of Hong Kong Air Pollution

A study from Hong Kong's University of Science of Technology has identified ship emissions from the city's container terminals as one of its main sources of SO₂ pollution. While power generation on land remained the main source of sulfur emissions affecting the territory, the study found significant rises in SO₂ levels when the wind blew from the sea rather than from the mainland. The study also found that SO₂ levels fell by a quarter in the wake of an 11% drop in shipping at the port following the world economic collapse.

64. EPA Offers Breathe Easily Program to Jakarta

The United States of America Environmental Protection Agency (EPA) has offered the Jakarta City Administration cooperation in better environment management. The form of coordination is the Breathe Easily Program.

Receiving this offering, the city administration responded positively. In fact, the offering is in line with the city administration's effort in developing its air quality program and air pollution management program.

The Administrator of EPA, Lisa P Jackson, said that her agency has been building cooperation with the Jakarta City Administration in improving the air quality in Jakarta. At this time, EPA's program is considered successful. "We will support the city administration to develop the Breathe Easily Program in Jakarta. The program will create cleaner air for society to breathe easily," Lisa said at City Hall.

The program should be discussed further. That is why there is no decision when the program will run. Both the city administration and Jackson want to run the program immediately. Jackson also supports the city administration's car free day program and Transjakarta bus that already uses environment-friendly gas.

Jakarta Governor Fauzi Bowo says the program can run considering the bylaws of environment, air pollution control, and society health improvement. The governor also expresses the city administration efforts to reduce the air pollution even though the number of personnel is low.

At this moment, the city administration has run air pollution control programs such as emission testing from 2005 to 2009. In 2005, there were 19,538 vehicles took part in the test, but 4,785

units did not pass the test, while 76 percent or 14,753 of them passed. In 2006, 27,655 vehicles took part in the test; 2,835 failed (10 percent) and 24,830 passed the test. In 2007, 15,918 vehicles took parts in the test; 6,167 failed and 9,751 passed. In 2008, 30,443 vehicles took part in the test, 4,147 failed and 26,296 units passed.

The next step is managing air quality in buildings, public areas and parking lots and also implementing no smoking areas in public places.

65. Jakarta to Require That Vehicles Pass an Emission Test

Starting in November 2009, the Jakarta administration will impose strict sanctions to four wheeled-vehicles which do not attach any sticker as a sign that they have passed the emissions test. The rule will also be applied later to motor bikes.

The Head of Jakarta Regional Environment Management Board's (BPLHD) Legal Enforcement Division, Ridwan Panjaitan said the sanction refers to Law No. 14/ 1992 which has been revised into Law No. 2/ 2009.

As for motorbikes, the regulation is still being tried out. If the outcome turns out to be satisfactory, the sanction would come into force next year.

BPLHD will collaborate with the Jakarta Traffic Regulators and the Jakarta Transportation Agency. Vehicles with no sticker on will be immediately prosecuted.

The policy would also involve Regional Law No 2/ 2005 on Motorized-Vehicles Emissions Test and other sets of regulations. "The Law states that the violators will have to pay Rp 50 million maximum fine or spend 6 months maximum in prison," Panjaitan said as quoted by Jakarta Local Officials' website.

According to him, at least 36 thousand four-wheeled vehicles have taken the emissions test and general check-up during 2009. Of this amount, around 80 percent passed the test and were given a sticker. The remaining 20 percent failed and the owners were asked to repair the vehicles at the available service centers.

66. Surabaya Asia's Third Most Polluted City: Survey

Surabaya has been named as the third most polluted city in Asia, according to the head of the East Java Environment Agency Dewi J Putriatni. "Surabaya is third after Bangkok and Jakarta as the most polluted cities in the Asia region," she said. Dewi expressed disappointment with the result of the survey since Surabaya has always been a national finalist for the cleanliness award, Adipura, from the Environmental Affairs Ministry.

"This is ironic," she said, adding that from 38 districts in East Java, 25 among them had received the Adipura award from President Susilo Bambang Yudhoyono. "We urge the Environment Ministry to revise the judging criteria for the Adipura award," Dewi added. According to her, evaluation of the Adipura award only focused on city's cleanliness, including the trash dumping system. "I suggest the committee to also put air quality as one of the variables," she said adding that the East Java administration also needs to find a solution to air pollution problems in Surabaya.

67. China's Acid Rain Control Strategy Offset by Increased Nitrogen Oxide

Scientists are reporting the first evidence that China's sharp focus on reducing widespread damage to soil by acid rain by restricting sulfur dioxide air pollution may have an unexpected consequence: Gains from that pollution control program will be largely offset by increases in nitrogen emissions, which the country's current policy largely overlooks.

The study, which suggests that government officials adapt to a more comprehensive pollution control strategy that includes a new emphasis on cutting nitrogen emissions, is scheduled for the November 1st issue of ACS' Environmental Science & Technology.⁴

Lei Duan and colleagues explain that China is trying to stop soil acidification by reducing sulfur dioxide pollution from electric power plant smokestacks. Those emissions cause acid rain, which in turn has made vast areas of farmland more acid and less productive. China's is striving for a 10 percent reduction in sulfur dioxide emissions by 2010, a policy that seems have had only a limited impact so far, the researchers say. However, China has paid little attention to pollution from nitrogen oxides, which also contribute to acid rain and soil contamination.

The scientists' analysis found that the benefits of sulfur dioxide reductions will almost be offset by increased nitrogen emissions. To control this problem, "China needs a multipollutant control strategy that integrates measures to reduce sulfur, nitrogen, and particulate matter," the article notes.

68. Tk 487crore Projects to Improve Dhaka City's Air Quality

The Dhaka government with support from the World Bank has launched a Tk 487 crore mega project to improve the poor air quality of this densely populated city. The five-year project, the Clean Air and Sustainable Environment (CASE), will be implemented by the Department of Environment (DoE), Dhaka City Corporation and Dhaka Transport Coordination Board (DTCB), as the quality of the city's air has deteriorated over the years for various reasons.

This is the first project that integrates the environment and transport under one common objective to improve the air quality of capital Dhaka, a sprawling city of 12 million people.

"The CASE project will improve the air quality in Dhaka city by addressing two main air-polluting sectors, the brick manufacturing and the transport sectors," Roads and Highways Division secretary Mozammel Haque Khan told a project-launching workshop. He said the project will introduce cleaner technologies in the highly polluting brick manufacturing sector, reduce energy consumption and lower air pollution. "In urban areas, the project will introduce low-cost measures to reduce conflict between motorized and non-motorized vehicles, reduce congestion and provide safer and cleaner mobility for pedestrian in pilot areas in the city," he told the function.

DTCB traffic engineer Anisur Rahman said the project will improve the traffic flow and pedestrian mobility and safety, build 25 foot over bridges, 70 km of new sidewalks, 80km of one-way streets. "It'll improve the bus route network and introduce Bus Rapid Transit (BRT) on at least one corridor," he added.

⁴ Yu Zhao, Lei Duan, Jia Xing, Thorjorn Larssen, Chris P. Nielsen and Jiming Hao. Soil Acidification in China: Is Controlling SO₂ Emissions Enough? Environmental Science & Technology, Nov. 1, 2009

About the traffic component of the project, Eng Shehab Ullah said the project objectives are to improve traffic flow in project intervention locations by increasing 10 percent of vehicular traffic and decreasing 10 percent of accidents by the end of project.

Dr Mohammad Nasiruddin said if the exposure to urban air pollution could be reduced by 20 percent to 80 percent it would result in saving 1,200 to 3,500 lives annually and avoiding 80 to 230 million cases of disease.

Acting Operations Advisor of the World Bank in Bangladesh Mohamed Toure said the Bank is particularly happy to be able to support the government to tackle Dhaka's environmental, transport and traffic challenges through the innovatively designed CASE project focusing on reducing air pollution and safe mobility under a co-benefit approach.

69. India Softens Climate Demands

India has dropped a core demand that industrialized countries cut greenhouse gases by 40 percent by 2020, thereby helping bridge a rich-poor divide and enhancing chances of a global climate deal.

"If we say, let's start with 25 percent, that's a beginning. I'm not theological about this. It's a negotiation. We have given a number of 40 but one has to be realistic," Environment Minister Jairam Ramesh told reporters in an interview. Ramesh said Prime Minister Manmohan Singh, keen to alter India's image as obstructionist in multi-lateral negotiations, had mandated him to be flexible. "I tell you my prime minister has told me two days ago, 'don't block, be constructive...make sure there's an agreement.' What more can I say?"

India also now supports a British estimate that developed countries should pay about 100 billion US dollars annually by 2020 to help poorer nations cope with climate change. Until now the country has suggested that the developed countries pay one percent of their national wealth – a far higher figure, which some rich countries branded a fantasy.

70. India, China Agree To Cooperate On Climate Change

India and China, both major polluters and crucial players in fighting global warming, have agreed to stand together on climate change issues at a major global conference later this year. The December summit in Copenhagen aims to replace the 1997 Kyoto Protocol, the first international deal requiring reductions in emissions of heat-trapping "greenhouse gases" by industrialized countries.

Developing countries argue that the industrial world produced most of the harmful gases in recent decades and should bear the costs of fixing the problem. India and China have agreed to work on slowing the growth of greenhouse gas emissions, but resist making those limits binding and subject to international monitoring.

"There is no difference between the Indian and Chinese negotiating positions, and we are discussing further what the two countries should be doing for a successful outcome at Copenhagen," Indian Environment Minister Jairam Ramesh said, according to the Press Trust of India news agency. Xie Zhenhua, China's top climate change negotiator, said the agreement "will usher in a new scenario and take cooperation on climate change between the two countries to a new high," PTI reported.

The agreement emphasized that the "United Nations Framework Convention on Climate Change and its Kyoto Protocol are the most appropriate framework for addressing climate change," according to a text released by India's Environment Ministry.

The United States rejected the Kyoto Protocol because it exempted developing countries, such as India and China, from obligations. Developing countries also want financial aid for their climate change efforts. The challenge in Copenhagen is finding a way to make a deal.

India, Pakistan and six other South Asian nations said they will stand together at Copenhagen to stick with the Kyoto Protocol, which expires in 2012.

71. India to Set Fuel Efficiency Standards by 2011

The Indian government will establish mandatory fuel efficiency standards for all vehicles within the next two years, Minister for Environment and Forests Jairam Ramesh told media in New Delhi on September 17th. "Looking at 2030, the contribution [of the automobile sector] will be 25 percent of total emissions from the transport sector," Ramesh said. Agreement on adoption of fuel efficiency standards would be the first step in this direction. Earlier, on September 2nd, the minister announced that automakers would be required to affix energy-efficiency labels on any vehicles they sell in India from 2011. Both steps are aimed at demonstrating India's commitment to tackling global warming when international negotiators meet at the U.N. climate change summit in Copenhagen in December.

72. PDVSA Withdraws From Vietnamese Refinery Project

Suddenly reversing an earlier decision, Venezuela's Petroleos de Venezuela SA withdrew from a project for the construction of a 200,000 b/d refinery at Long Son in Vietnam. "Initially PDVSA wanted to be involved in the whole process—from supplying crude oil, to financing the transportation, and building the refinery with a total investment capital ranging from \$6-7 billion, but it has changed those plans," said a spokesperson for Petrovietnam.

Phung Dinh Thuc, Petrovietnam chief executive officer, gave no reason for PDVSA's withdrawal from the project in the southern province of Ba Ria Vung Tau, which was initially endorsed by Venezuelan President Hugo Chavez during a visit to Hanoi in 2006. As recently as September 29th, PDVSA Vice-Pres. Eulogio Del Pino said his firm had "advanced its interest" in holding a 30% stake in the \$3.77 billion Long Son petrochemical complex.

At the time, Del Pino—who met with Thuc in Caracas—also said PetroMacareo SA, an oil joint venture of Vietnam 40% and Venezuela 60%, would produce crude at the 248-sq-km Junin II block, with half the 200,000 b/d of output going to the refinery at Long Son for processing. "It is expected that within 18 months the crude oil production process will begin," said Del Pino.

With Venezuela's withdrawal from the refinery project, Thuc said the Vietnamese firm is seeking other partners, adding that the group will place a priority on investors who are experienced in refining and who can provide crude for the plant. "Petrovietnam is proactive in talks with Petronas of Malaysia, International Petroleum Investment Co. of the UAE, and Trafigura [Pte Ltd.] of Singapore," Thuc told Vietnam's Lao Dong newspaper.

A consortium comprised of Petrovietnam, Vietnam National Chemical Corp. (Vinachem), and two Thai partners—Vina SCG Chemical Co. Ltd. and Thai Plastic & Chemicals Public Co. Ltd.—started construction on the Long San complex a year ago. The petrochemical complex will

occupy a 400-hectare section of the Long Son petroleum industrial park in Long Son commune, Vung Tau city.

73. China Pledges to Curb CO2 Emissions

Chinese President Hu Jintao promised to put a "notable" brake on the country's rapidly rising carbon emissions, but dashed hopes he would unveil a hard target to kick start stalled climate talks. The leader of the world's biggest emitter told a U.N. summit that China would pledge to cut "carbon intensity," or the amount of carbon dioxide produced for each dollar of economic output, over the decade to 2020.

His promise is a landmark because China had previously rejected rich nations' demands for measurable curbs on its emissions, arguing that economic development must come first while millions of its citizens still live in poverty. But without a firm figure attached, the offer to reduce emissions intensity may not be enough to rekindle faltering talks on a new global deal to tackle climate change.

Hu said that carbon intensity would come down "by a notable margin by 2020 from the 2005 levels," which still leaves Beijing and other major powers plenty of room for maneuver before final negotiations in Copenhagen in December.

Yu Jie, an official in charge of Climate Group's Policy and Research, said it was the first time a Chinese leader had revealed the country's target at an international conference, and it could be interpreted as a commitment even though no actual figure was disclosed.

Hu said China would strive to develop renewable energy and nuclear energy, and increase the proportion of non-fossil fuels in energy consumption to about 15 percent by 2020, which was at about 9 percent at the end of 2008. He also said China would increase forest coverage by 40 million hectares by 2020 to absorb carbon.

China published its National Climate Change Program in June 2007, pledging to reduce energy consumption per unit GDP, and to increase the proportion of renewable energy in total energy consumption to 10 percent by 2010 compared with 7.5 percent in 2005. This would cut 1.5 billion tons of greenhouse gas emissions and save 620 million tons of standard coal.

On August 27th, the National People's Congress Standing Committee, China's top legislature, approved a resolution on "actively tackling climate change" including specific measures on greenhouse gas emission controls, improvement of adaptability to climate changes, support of scientific research and the development of a low-carbon economy. The resolution also required climate change coping capacity be considered an element of long-term sustainable growth.

Since the 1990s, China has adopted a series of new laws concerning climate change issues, including the Renewable Energy Law, Energy Conservation Law, Cleaner Production Promotion Law, and the Circular Economy Promotion Law.

China projected in 2005 to reduce carbon dioxide emissions per unit of GDP by 20 percent during its 11th five-year-plan. By the end of 2008 carbon dioxide emissions per unit of GDP had decreased by 10 percent, with sulfur dioxide and chemical oxygen demand down respectively by 9 percent and 6.6 percent. Yu said that the goal of 20 percent emission decrease could "both ensure China's energy security and help combat the challenge of climate change."

Green investment such as public transportation and energy-saving and emission-reduction projects accounted for 30 percent of the government's 4-trillion-yuan (586 billion U.S. dollars) economic stimulus plan.

The State Council said in its 2009 energy-saving and emission-reducing plan that the country would save 75 million tons of standard coal in the year by 10 major projects and supports the establishment of new energy vehicle pilot units in 13 cities including Beijing, Shanghai and Chongqing.

The government has accelerated the construction of hydropower, nuclear, solar and wind power capacities. According to the country's long and mid-term development plan of nuclear power plants, nuclear power installed capacity will reach 40 million kilowatts by 2020 and will generate 260 billion to 280 billion kilowatt hours of electricity each year, accounting for 4 percent to 6 percent of the country's total.

On the Loess Plateau in northwest China's Shaanxi Province, forests and grass planted in the past decade have turned the bare sandy terrain green -- the result of the national campaign to return cropland to forest and grass, begun in late 1990s. The campaign prohibits all commercial logging in natural forests along the upper and middle reaches of the Yangtze and Yellow Rivers, China's two longest waterways, and reduces felling in northeast China and the Inner Mongolia Autonomous Region. The project has protected forests on 104 million hectares, and added 15.27 million hectares of new forests.

The reforestation program was initially aimed at stopping desertification and the destruction of China's waterways, but it evolved into a way of giving public expression to the challenges of climate change and also forest and ecosystem degradation.

The Chinese government has planted 2.6 billion trees, bringing the total on the planet to 7.3 billion trees planted in 167 countries worldwide, according to a report by United Nations (UN) Environment Program, which was released on September 21st.

74. Petrochina's Dushanzi Plant Starts Formal Operations

PetroChina started formal operations at its new 200,000 barrel-per-day refinery in northwest Xinjiang region, the official Xinhua News Agency has reported. This is reportedly in line with market expectations, as press report cited a plant manager as saying last month that the plant would run at 70 percent capacity in September after several successful test-runs.

Costing about 30 billion Yuan (\$4.4 billion), the plant is the third major oil processor China has started up this year, after CNOOC's 240,000-bpd plant in southern Guangdong and Sinopec Corp's 160,000-bpd refinery in Fujian, which together helped fuel the country's record crude imports.

The plant had 10 oil refining units including 10-million-tonne distillation units and 2-million-tonne hydro-crackers, Xinhua said, citing plant officials.

It also had 11 chemical facilities including 1-million-tonne ethylene, 900,000-tonne polyethylene and 550,000-tonne polypropylene units, the report said.

The plant manager told Reuters in August that the new plant could operate at full capacity in the fourth quarter, but actual operations would depend upon domestic fuel demand.

The new facility is designed to process Kazakh crude pumped via a Kazakh-China pipeline.

Once the new plant enters normal operations, PetroChina will shut down an older 110,000-bpd crude unit at the same site, displacing some local Xinjiang crude oil to other refineries in the region.

75. India Says Greenhouse Gas Pollution to Jump

India said it expects its greenhouse gas emissions to jump to between 4 billion tons and 7.3 billion tons in 2031, according to a report. Per capita emissions are estimated to rise to 2.1 tons by 2020 and 3.5 tons by 2030.

The report is the nation's most sweeping emissions summary, highlighting India's growing role as a key player in U.N.-led climate negotiations aimed at winning agreement of all nations to curb the growth in planet-warming greenhouse gas emissions.

"The results should set at rest any apprehensions that India's GHG (greenhouse gas) emissions are poised for runaway increase over the next two decades," the government report said.

In a 2004 report to the United Nations, the last time India published detailed emissions data, the government said total greenhouse gas emissions were 1.228 billion metric tons, or about 1.3 tons per person, in 1994.

A government report in August said India contributes around five percent to global carbon dioxide emissions, but was still only about a quarter of the emissions of China and the United States.

76. Honda Unveils Battery-Powered Unicycle

Honda Motor Co has unveiled an electric battery-powered personal transporter, a unicycle shaped like the number eight that riders steer by leaning in the direction they want to travel. The "U3-X," which Honda will show at the Tokyo Motor Show next month, is the latest to join a growing number of futuristic transportation devices, such as the much bigger Segway.

But while the Segway has been used outdoors and in big buildings, the 65 cm (2 ft 2 inch) tall Honda machine is small enough and light enough to use at home.

Honda's machine has a one-wheeled, "8"-shaped body on which the rider sits and changes direction by leaning forward, backward or sideways. It moves at a maximum speed of 6 kph (3.7 mph), about the pace of brisk walk.

The self-balancing U3-X, weighing in at less than 10 kg (22 lb), is powered by a lithium-ion battery and runs for an hour per charge.

Honda Chief Executive Takanobu Ito told reporters the machine could one day become the smallest means of transportation for human beings, though it is purely in the development stage and the automaker has no plans to start selling them now.

Ito said the U3-X's small size would make it an ideal indoor transport device.

"If my legs get a little weak, I would like to have this around in my house. It's easy to move around," said the 56-year-old CEO.

South America

77. Brazilian Council Tightens Emissions Limits for Cars

On September 2nd, Brazil's National Environmental Council (CONAMA) issued a resolution that reduced emissions limits for three pollutants by as much as 35 percent for gasoline- and ethanol-fueled cars and vans produced after January 1, 2014, and for diesel-fueled pickups and four-wheel-drive vehicles produced after Jan. 1, 2013, according to an Environment Ministry official. The resolution reduced limits for three principal exhaust pollutants—carbon monoxide, nitrogen oxide, and particulate matter—from current standards that went into effect in January 2009. CONAMA did not reduce limits for hydrocarbons, the other principal emissions pollutant, because the existing ones were already considered low. "Even though the new emission limits are higher than those in the United States and Europe, their aim is to improve air quality considerably," Rudolf Noronha, air quality manager of the Environment Ministry's environmental quality secretariat, said. Automakers will need to equip their new models with more efficient catalytic converters and with less-polluting engines capable of reaching those limits, Henry Joseph, manager of Volkswagen do Brazil's engine laboratory, told the press.

78. Brazilian Working Group Drafts Resolution to Require Emissions Inspections

A working group of Brazil's National Environmental Council (CONAMA) has drafted a resolution that would make car emissions inspections mandatory nationwide, an official involved in the process told reporters on August 24th. The draft will be analyzed and perhaps revised by a CONAMA technical committee before going to the council for approval, said the official, who asked to remain anonymous.

In a related move, the Environment Commission of the Chamber of Deputies, Brazil's lower house of Congress, approved legislation on August 19th requiring emissions inspections of cars more than 3 years old, Congressman Luiz Carreira, the bill's author, told reporters on August 25th. That legislation, still unnumbered, needs approval of the chamber's Constitution and Justice Commission in order to reach the floor of the body for a vote, and must go through a similar approval process in the Senate.

"The CONAMA resolution will probably be approved more quickly than my bill, in which case my bill will likely be altered to conform to the CONAMA resolution," Carreira said. "I introduced the bill because it is easier to force states, who will carry out these vehicular inspections, to comply with a law than with a CONAMA resolution, which doesn't have the force of a law."

Carreira said air pollution is growing worse in Brazilian cities, increasing respiratory problems.

When CONAMA set vehicular emission limits in 2005, the council hoped cities and states would use them to make vehicular emissions inspections mandatory, the official said. But only the state of Rio de Janeiro and the city of São Paulo, Brazil's largest metropolis and the one with the worst air pollution, now have mandatory vehicular emissions inspections and use 2005 CONAMA emissions limits.

Detran SP, the motor vehicle regulatory agency for São Paulo, will not annually renew a vehicle's operating license unless it passes the emissions test, a spokeswoman at the

Environmental Secretariat told reporters. Owners with expired operating licenses can be fined 550 reais (\$295) if stopped by the police.

The motor vehicle regulatory agency in Rio de Janeiro state, Detran RJ, will renew an operating license when a car fails the annual emissions test. But the agency notes this failure on the license, which lowers the resale value of the car.

"We have not made the test mandatory for renewing this license until now because INMETRO (Brazil's National Institute of Metrology, Standardization, and Industrial Quality) has not yet approved our vehicular emissions measuring devices," a Detran RJ spokesman told reporters on August 24th. "We expect INMETRO to do so in the next few months, allowing us not to renew this license unless a car passes the emissions test."

79. Petrobras, PDVSA Agree To Terms of Abreu E Lima Refinery

Brazil's Petroleo Brasileiro SA (Petrobras) said it has resolved all outstanding issues with Venezuela's Petroleos de Venezuela SA over development of the Abreu e Lima refinery planned for Suape, near Recife in northeastern Brazil. Paulo Roberto Costa, Petrobras director for supply, said there were no more obstacles to construction of the refinery, and that there is no change in the proportion of investment required from either side, with Petrobras to supply 60% of the refinery's investment and PDVSA the remaining 40%.

However, PDVSA will have to pay Petrobras at least \$400 million when it signs the final agreement for the Abreu e Lima refinery, according to a Petrobras spokesperson. "This amount represents the obligations PDVSA has in this project calculated until December 2008. A consulting company is now reviewing all investments that both companies have to take responsibility for as from January, 2009," the spokesperson told the press. "We expect the revised amount to be paid by cash immediately after the agreement is signed," the spokesperson added.

Meanwhile, Costa said there had been several obstacles holding up the refinery agreement, including the rising cost of the project, which has escalated to about \$12 billion from a preliminary estimate of \$4.06 billion. Petrobras said the increased cost of the joint venture was normal for such projects because pricing always increases once more detailed plans are developed. Petrobras also said that \$2 billion of the cost increase came from the appreciation of Brazil's currency.

Other areas of disagreement came over rights to purchase products from the refinery and Venezuela's desire for higher-than-market prices for the heavy crude it plans to supply to the refinery.

PDVSA and Petrobras are each expected to provide 50% of the oil needed for the 230,000-b/d refinery, which saw the start of construction, mostly land-leveling, in 2007.

MIDDLE EAST

80. Growing Air Quality Concerns in Israel, Especially Haifa

A report released by the Coalition for the Public's Health, comprised of over 20 environmental organizations, presents a worrisome picture regarding air quality in Israel, as well as associated concerns due to exposure to toxic hazards carried in the air Israelis breathe. The report

documents that schools around the country are exposed to air quality levels containing toxins that result in medical issues among the young, including alarmingly high numbers involving illness and the need for hospitalization.

Perhaps no less alarming is the fact the report states many of the standards permitted under the law are far more lenient than western standards, and despite the lax regulations, many factories fail to meet the standards resulting in the high level of pollutants which results in the unacceptable air quality. Many developed nations over recent years have taken steps to improve air quality, but in Israel, the situation continues to deteriorate. Studies document a direct correlation between declining air quality and acute illness and emergency rooms visits, primarily among children, but this is also true to a lesser extent among adults too. The daily Yisrael HaYom reports this is confirmed by a senior physician at Ashkelon's Barzilai Hospital, who explains the emergency visits are more common among children.

Haifa and the surrounding area remains the most polluted, in no small part due to the major chemical plants operating in the port city. During the years 2007 and 2008, prohibited and dangerous substances were found in the air in a quantity 6-10 times that permitted by law. Children residing in this high-risk area regularly inhale fumes from toxins including gasoline, lead, nickel, zinc and formaldehyde along with other proven carcinogens.

The rate of hospital visits/admissions is 10% to 30% higher than the national average according to a study published as far back as 1995. Nothing has been done to change this unacceptable reality and during the years 1998-2008, hospital admissions among children residing in the high-risk area continue to climb.

Chadera is also listed in the report as a problematic area, but at the same time, it is reported that pollution does not exceed the permitted limits as stipulated in the law, but the facts speak for themselves, that there is a higher than national average of illness among children attributed to poor air quality. The air pollution connection to illness also exists in Ashkelon, as well as Ramat Chovav. The impact of the area chemical plants in the latter is seen among the members of the Bedouin community, who have an unusually high number of cases of people with respiratory ailments.

Haifa Mayor Yona Yahav announced he plans to invite officials involved in the report to meet with him, to learn exactly where the problem lies, hoping to have them assist him in formulating a plan to address the situation and take corrective action to reduce the risk to residents.

Ramat Chovav officials responded as well, stating the chemical plants operating in the area take considerable steps to limit the discharge of harmful pollutants, as well as taking measures to prevent the spillage of contaminated liquids from such plants.

Chadera officials stated the city works to ensure plants operating in the municipal boundaries remain within the parameters set forth under the law.

Yoram Shefer, who is responsible for the environmental portfolio in Ashkelon, warns that if another power plant is constructed in the city as planned, the rate of illness among children living in proximity of the plants will only continue to increase.

Ministry of Environmental Affairs officials announced they are studying the report.

AFRICA

81. Transport, Energy Sectors Must Give More Thought to Air Quality in South Africa

The integration of air quality considerations into the transport, energy and spatial development planning sectors, as well as the cost optimization of air quality monitoring systems, were just some of the areas South Africa had to do more work on.

This was highlighted with the release of the 'South African State of the Air Report 2005', launched recently by Water and Environmental Affairs Deputy-Minister Rejoice Mabudafhasi, in Vanderbijlpark. The report had determined some key conclusions, including that human health aspects related, in particular, to inhalation exposure to household coal and wood emissions, remained the most serious and pressing national air pollution problem. Further, high ambient sulfur dioxide and concentration of fine particulate matter, owing mainly to fuel combustion within households, as well as the industrial and power generation sectors, represented ongoing air pollution problems in many parts of the country. Elevated fine particulate concentrations occurred across the country, frequently exceeding health thresholds, while the close proximity of heavy industries and communities of people presented persistent health risks and conflict, which was exacerbated by increased pressure to build residential areas within former industrial and mining buffer zones.

Further, the department highlighted that emerging air pollution issues were closely associated with the transport sector, and in particular, road use, while questions regarding potential environmental impacts and the transboundary transportation of pollution generated by medium and elevated stack emissions from petrochemicals, metallurgical, and mineral-processing operations, and by coal-fired power stations, remained.

Meanwhile, compliance with new and more stringent air quality standards; understanding and addressing the risks to human health posed by exposure to airborne hazardous materials; responding to evidence that, for some pollutants, there may be no way to quantify the threshold below which exposure is no longer harmful; mitigating air pollution impacts that disproportionately affect low income communities; and reducing industrial emissions without detrimental effects on society and the economy, were some of the pressing challenges highlighted by the report.

GENERAL

82. Air Pollution Linked To Dementia

Air pollution can significantly increase the risk of memory problems in the elderly, reveals a new study. German researchers have found that women who had lived near busy roads for at least 20 years were more likely to show signs of mild cognitive impairment, early memory problems that may lead to dementia.

During the study, a team from Heinrich-Heine University in Dusseldorf measured background levels of air pollution and the women's addresses from distances from busy roads that carried more than 10,000 cars a day. They found that for women aged under 74 the nearer they lived to a busy road the worse they performed on the cognition tests.

"These results indicate that chronic exposure to traffic-related PM may be involved in the development of mild cognitive impairment and since mild cognitive impairment is a transition

state between normal aging and dementia, more research should be conducted with these women," the Telegraph quoted the research paper as saying.

It is believed the fine particles in air pollution can pass through the lungs and lodge in the brain where they cause inflammation linked to dementia.

83. Polluted Air May Give You a Headache

A study from the densely populated Santiago Province of Chile -- a region surrounded by the Coastal and Andes mountains and, therefore, geographically prone to air pollution - found increased hospital admissions for migraines and other headaches on days of elevated air pollution readings.

Further investigations are needed to confirm the consistency of these findings in different regions, Dr. Sabit Cakmak, with Health Canada in Ottawa, Ontario, and co-investigators say.

In the study, reported in the American Journal of Epidemiology, Cakmak's team assessed air pollution levels taken at 7 monitoring stations between 2001 and 2005.⁵ The stations measured for ozone and air pollutants such as nitrogen and sulfur dioxide, carbon monoxide, and tiny, floating particles known as particulate matter associated with the combustion of gasoline, natural gas, and other fossil fuels.

During the same period, the investigators collected information on the number of hospitalizations for migraine headache, as well as tension, cluster, or other types of headache.

When the investigators pooled the air pollution data from all regions they found, air pollution was a risk factor for all types of headache. This remained true in all pollutant-headache combinations analyzed.

These associations did not significantly change in analyses that accounted for the influence of age, gender, or season, Cakmak noted.

Based on their findings, Cakmak and colleagues say the estimates of the burden of illness and costs associated with poor air quality should include illness associated with headache.

84. The Effect of Air Pollution Is Greater On Obese People than Lean People

The impact of air pollution is worse for obese people, new research from the US has suggested. The researchers studied 919 households in three areas in the vicinity of Detroit, Michigan, over a five-year period, and a number of residents gave blood samples and had their blood pressure, body mass index (BMI) and waist circumference measured.

Data on ethnic background, gender, age, educational attainment, dietary habits and exercise, and pre-existing health problems were also collected as these factors all have a bearing on blood pressure. Just over half the participants were obese, as measured by their BMI, and 57% had waist circumferences indicating a higher than average risk for serious ill health, such as diabetes and heart disease. More than two thirds of the total sample either had high blood

⁵ American Journal of Epidemiology, October 15, 2009

pressure or were on the cusp of a diagnosis of high blood pressure, and more than one in three had high blood cholesterol.

Air pollution levels in the south-west site in Detroit were 20% higher than the other two sites, because it contains a relatively high concentration of heavy industry. Those who lived closest to heavy traffic and other sources of air pollution had higher pulse pressure. They also had higher systolic blood pressure, irrespective of whether they were lean or fat.

The effect was greater still among those classified as obese (BMI of 30 or higher and a large waist), and most evident 48 to 96 hours after exposure to the pollutant.

The results of the study were published in the Journal of Epidemiology and Community Health.

85. UNEP Sustainability Panel Highlights Dirty Biofuels

The production and use of biodiesel from palm oil on deforested peat lands in tropical regions can generate up to 2,000% more greenhouse gas emissions than fossil fuels, according to a new study published by a UN sustainability expert panel. The study identifies the conditions under which biofuel production can lead to higher emissions, and highlights examples of dirty fuels. It depends on how they are produced, says the International Panel for Sustainable Resource Management.

Biodiesel can reduce greenhouse gas emissions "if the palm oil or soya beans are... grown on abandoned or degraded land". Bioethanol from Brazil can lead to emission reductions of between 70% and "well over 100%", the experts say.

The report calls for a sophisticated approach that places biofuels in the context of "an overall energy, climate, land-use, water and agricultural strategy". UN environment Chief Achim Steiner said biofuels were "neither a panacea nor a pariah but... represent both opportunities and challenges".

Other options including local electricity generation from waste, using abandoned land for solar power and developing electric cars could generate "more efficient" environmental benefits than a wider use of biofuels, the experts also say. Biofuels have recently attracted strong criticism of their green credentials.

The report's findings "are already integrated into EU biofuels policy which is based on targets and sustainability criteria", the European Commission said in a statement. Under EU law, 10% of transport fuels by 2020 must come from renewable energy including biofuels and green electricity.

86. Advanced Biofuels Will Stoke Global Warming: Study

New generations of biofuels, meant to be a low-carbon alternative, will on average emit more carbon dioxide than burning gasoline over the next few decades, a study published in Science found.⁶ Governments and companies are pouring billions of research dollars into advanced fuels made from wood and grass, meant to cut carbon emissions compared with gasoline, and not

⁶ Future Consequences Of A Global Biofuels Program Predicted. ScienceDaily. Retrieved October 24, 2009, from <http://www.sciencedaily.com/-/releases/2009/10/091022141117.htm>

compete with food as corn-based biofuels do now. But such advanced, "cellulosic" biofuels will actually lead to higher carbon emissions than gasoline per unit of energy, averaged over the 2000-2030 time period, the study found. That is because the land required to plant fast-growing poplar trees and tropical grasses would displace food crops, and so drive deforestation to create more farmland, a powerful source of carbon emissions.

Biofuel crops also require nitrogen fertilizers, a source of two greenhouse gases: carbon dioxide (CO₂) and the more powerful nitrous oxide.

"In the near-term I think, irrespective of how you go about the cellulosic biofuels program, you're going to have greenhouse gas emissions exacerbating the climate change problem," said lead author, Jerry Melillo, from the U.S. Marine Biological Laboratory.

Without steps to protect forests and cut fertilizer use, gasoline out-performs biofuels from 2000-2050 as well.

A related study, also published in the same issue of the journal *Science*, said the United Nations had exaggerated carbon savings from biofuels and biomass, in a mistake copied by the European Union in its cap and trade law, by ignoring deforestation and other land use changes. The mistake was carried into U.S. climate legislation as well, and would worsen as governments put a price on carbon, driving more biofuel use, it said.

"There will be increasing pressure to convert the biomass of the world into an energy source," said Steve Hamburg, chief scientist at green group the Environmental Defense Fund and co-author of the second *Science* paper. "Then it competes with agriculture, water protection, biodiversity, a whole host of things, and that doesn't provide benefits to the atmosphere," he told reporters.

It was also important to take account of how the land had been managed before it was grown with biofuels, said Hamburg. A previous farming practice may have been better for the planet, he said, underlining the complexity of calculating benefits.

Advocates hope that forthcoming talks to agree a new global climate deal in Copenhagen in December will protect forests, by rewarding land owners to store carbon in their trees.

The first paper did not explicitly consider the food production impact of ramping up advanced biofuels. The U.N.'s food agency says that global food output will have to increase 70 percent by 2050 to feed a growing, more affluent population.

The world's forests, rather than farmland, would have to make way for biofuels which would consume by 2100 more land than all food crops now, the first study found.

87. Airlines Set New Fuel Efficiency Goals

The world's airlines have agreed to new fuel efficiency and carbon emission targets which go much further than the levels required through regulation, an industry group has announced. The International Air Transport Association (IATA), which represents 230 airlines, said that carriers, airports and aerospace firms had pledged to improve fuel efficiency by 1.5 percent a year annually until 2020. At a meeting in Montreal, they also set a goal of having carbon-neutral growth by 2020 and to record a 50 percent net reduction of carbon emissions in 2050 compared to 2005 levels.

"Airlines have set even more ambitious targets than governments for the longer-term," IATA Director-General Giovanni Bisignani told reporters on a teleconference. "No other industry has been able to achieve what we have done," he said, describing the cooperation between all players in the sector on the environment question. "We are on the high ground and government must now catch up."

IATA has previously said that biofuels hold great potential to reduce the polluting emissions from planes, and has supported moves to offset fossil fuels burned in air transport.

88. All-in-one Computerized Scheduling to Make Airports Greener and More Efficient

A new computerized approach to airport operations is being developed that will reduce delays, speed up baggage handling and decrease pollution. The project is funded by the Engineering and Physical Sciences Research Council (EPSRC) and led by researchers at The University of Nottingham. The research work aims to computerize and co-ordinate four key areas of airport operations: scheduling of airplanes taking-off and landing, gate assignment and baggage handling. The end result will be a prototype search engine capable of analyzing the many billions of possible scheduling combinations so as to provide the best advice to the controllers, who decide where in the airport to send planes.

Currently these four aspects of airport operations are, in most cases, organized manually by highly skilled staff making decisions based on observations, reports and their experience. Furthermore, each activity is run in isolation from the others, which allows the potential for any difficulties in operations in one area to affect another. This can lead to delays snowballing.

As well as enhancing the experience for passengers, crucially, the improvements in scheduling will reduce pollution by minimizing the time planes are on the ground with engines running. This could save thousands of liters of aviation fuel every year, a vital improvement given the growth in air travel predicted in the coming years.

A consortium of researchers from four universities are involved in the project, assisted by Manchester and Zurich Airports which will provide crucial advice and expertise from the user's point of view. The project will see development of computational models for each of the four airport operations which, ultimately, will be run on regular PCs. Key to the research will be examining how to run them all together to streamline overall operations.

Principal investigator on the project and Dean of the Faculty of Science at The University of Nottingham, Professor Edmund Burke, says the limitations of the current systems are widely acknowledged: "Many people in the industry recognize that automating just one of these aspects could improve the efficient running of airport operations, so integrating all four would be a huge step forward."

"We'll be developing a computer system that will work its way through the many billions of permutations created daily in each of these operations, to provide a much higher level of computer-aided decision support than is currently available," says Burke. This will provide the best possible advice to runway controllers and other airport staff to inform their decisions regarding where planes and baggage are moved to.

Among the crucial issues being tackled is the matter of how long an airplane needs for preparation on the ground before takeoff. This has to include enough time for the passenger

safety briefing, which is a legal requirement, and for the engines to warm up. If sent to the runway without incorporating enough time for these activities, it will mean a delay at the runway before takeoff. This can lead to unnecessary congestion on the runway, aircraft unnecessarily using up fuel while waiting for takeoff, and, potentially, delays to other flights.

Burke adds that the involvement of the two airports will also provide invaluable assistance to the multi-disciplinary team of scientists and engineers: "Working closely with Manchester and Zurich airports will ensure access to real world expertise that should help us achieve the best possible result."

The academic team in the consortium consists of representatives from: The University of Nottingham, University of Salford, Loughborough University and University of Liverpool. The four-year research project "Integrating and Automating Airport Operations" will begin on 1 December 2009 and is scheduled to end on 30 November 2013. It has received EPSRC funding of £681,924.

Research by the Georgia Institute of Technology in 2006 found that a 1% increase in air transport leads to a 5% increase in delays. With a 26% rise in air transport expected by 2013, compared to 2006, (according to the European Organization for the Safety of Air Navigation) this project could help airports change the way they operate.

89. Climate Pundit Seeks Faster CO2 Shipping Cuts

The United Nation's shipping agency must move faster to introduce mandatory efficiency measures for vessels, according to veteran environmental campaigner Jonathon Porritt. Failure to do so could result in a solution being imposed on the shipping industry by the European Union and others, he said.

Shipping and aviation are the only industry sectors not regulated under the Kyoto Protocol, which sets targets for greenhouse gas emissions by rich countries from 2008-12.

The seaborne sector accounts for nearly three percent of global carbon dioxide (CO₂) emissions and pressure has grown for cuts ahead of December's climate change summit in Copenhagen.

Delegates from member state countries of the International Maritime Organization (IMO) in July approved non-compulsory technical and operational measures to reduce greenhouse emissions from ships. "There is a sense amongst all of us that the IMO has ... been dragging its feet on all of this," Porritt said. "Progress made has really been very slow indeed," he told reporters in an interview.

The voluntary measures reached in July included an energy efficiency index to ensure the design of new vessels and existing ships were environmentally friendly. The initiatives were circulated for trial use and will be discussed at the IMO's next committee session in March 2010.

The Forum for the Future charity, which Porritt co-founded, has joined British entrepreneur Richard Branson and others in a new group called the Carbon War Room seeking a more active stance from the IMO and the shipping industry to combating CO₂.

The EU has signaled that in the absence of a proper agreement on CO₂ cuts the EU could impose its own solution. The bloc is likely to propose aviation and shipping should cut their

respective carbon dioxide emissions to 10 and 20 percent below 2005 levels over the next decade.

"If the IMO is not able to raise its game, then the industry is going to find itself increasingly regulated to do what it is currently in a position to do voluntarily," Porritt said. "The first thing would be to agree an absolute timetable for introducing these indexes," said Porritt, who stepped down as chairman of the UK government appointed Sustainable Development Commission this year.

An IMO spokeswoman said it had opted not to make binding decisions on climate change before December's summit. "Rather, IMO looks to the Copenhagen Conference to provide, through a new framework treaty instrument, political insight and direction," she said. "The organization stands ready to enact the necessary technical and operational measures needed to give effect to its members' relevant decisions."

Environmental groups argue the measures reached in July did not go far enough given opposition from China, India and Saudi Arabia. Peter Hinchliffe, marine director with the International Chamber of Shipping, which represents 75 percent of the global industry, said it wanted to see a mandatory design index in the "fastest possible timescale," adding shippers were in a constant search for increased efficiency to cut CO2. "We already called for mandatory application but it was thrown out by the member states," he told the press. "Many of them are preserving their position for Copenhagen."

90. Air Pollutants from Abroad a Growing Concern, Says New Report

Plumes of harmful air pollutants can be transported across oceans and continents -- from Asia to the United States and from the United States to Europe -- and have a negative impact on air quality far from their original sources, says a new report by the National Research Council.⁷ Although degraded air quality is nearly always dominated by local emissions, the influence of non-domestic pollution sources may grow as emissions from developing countries increase and become relatively more important as a result of tightening environmental protection standards in industrialized countries.

"Air pollution does not recognize national borders; the atmosphere connects distant regions of our planet," said Charles Kolb, chair of the committee that wrote the report and president and chief executive officer of Aerodyne Research Inc. "Emissions within any one country can affect human and ecosystem health in countries far downwind. While it is difficult to quantify these influences, in some cases the impacts are significant from regulatory and public health perspectives."

The report examines four types of air pollutants: ozone; particulate matter such as dust, sulfates, or soot; mercury; and persistent organic pollutants such as DDT. The committee found evidence, including satellite observations, that these four types of pollutants can be transported aloft across the Northern Hemisphere, delivering significant concentrations to downwind continents. Ultimately, most pollutants' impacts depend on how they filter down to the surface.

⁷ National Academy of Sciences (2009, September 30). Air Pollutants From Abroad A Growing Concern, Says New Report. ScienceDaily. Retrieved October 24, 2009, from <http://www.sciencedaily.com/releases/2009/09/090929132509.htm>

Current limitations in modeling and observational capabilities make it difficult to determine how global sources of pollution affect air quality and ecosystems in downwind locations and distinguish the domestic and foreign components of observed pollutants. Yet, some pollutant plumes observed in the U.S. can be attributed unambiguously to sources in Asia based on meteorological and chemical analyses, the committee said. For example, one study found that a polluted air mass detected at Mt. Bachelor Observatory in central Oregon took approximately eight days to travel from East Asia.

The health impacts of long-range transport vary by pollutant. For ozone and particulate matter -- which cause respiratory problems and other health effects -- the main concern is direct inhalation. While the amount of ozone and particulate matter transported on international scales is generally quite small compared with domestic sources, neither of these pollutants has a known "threshold," or concentration below which exposure poses no risk for health impacts. Therefore, even small incremental increases in atmospheric concentrations can have negative impacts, the committee said. For instance, modeling studies have estimated that about 500 premature cardiopulmonary deaths could be avoided annually in North America by reducing ozone precursor emissions by 20 percent in the other major industrial regions of the Northern Hemisphere.

For mercury and persistent organic pollutants, the main health concern is that their transport and deposition leads to gradual accumulation on land and in watersheds, creating an increase in human exposure via the food chain. For example, people may consume mercury by eating fish. There is also concern about eventual re-release of "legacy" emissions that have been stored in soils, forests, snowpacks, and other environmental reservoirs.

In addition, the committee said that projected climate change will lead to a warmer climate and shifts in atmospheric circulation, likely affecting the patterns of emission, transport, transformation, and deposition for all types of pollution. However, predicting the net impacts of the potential changes is extremely difficult with present knowledge.

In the coming decades, man-made emissions are expected to rise in East Asia, the report says. These increases could potentially be mitigated by increasingly stringent pollution control efforts and international cooperation in developing and deploying pollution control technology.

To enhance understanding of long-range transport of pollution and its impacts, the committee recommended a variety of research initiatives, such as advancing "fingerprinting" techniques to better identify source-specific pollutant characteristics, and examining how emissions from ships and aircraft affect atmospheric composition and complicate the detection of pollution from land-based sources. The committee emphasized developing an integrated "pollution source-attribution" system that improves capabilities in emissions measurements and estimates; atmospheric chemical and meteorological modeling; long-term, ground-based observations; satellite remote sensing; and process-focused field studies.

Moreover, the committee stressed that the United States, as both a source and receptor of long-range pollution, has an interest in remaining actively engaged in air pollutants that travel abroad, including support of more extensive international cooperation in research, assessment, and emissions control efforts.

The report was sponsored by the U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, NASA, and National Science Foundation.

91. UN Confirms Upward Trend in Rich Nations' Emissions

Industrialized nations' greenhouse gas emissions rose by 1% in 2007, confirming a continuing growth since 2000, according to the latest UN annual data. Emissions increased by 3% between 2000 and 2007.

Emissions in the 40 countries with reporting obligations under the UN Framework Convention on Climate Change (UNFCCC) were about 4% below 1990 levels. Emissions from countries with Kyoto targets remain at about 16% below the 1990 baseline.

The UNFCCC data confirms a 4.3% emission reduction in the EU-15. Emissions from old EU member states will fall to 3.6% below 1990 levels by 2010, according to European Environment Agency predictions. Emissions in the region currently stand at 5% below the baseline.

Earlier this year, the European agency said EU-27 emissions were down 9.3% in 2007. The UNFCCC data does not combine emissions from both old and newer EU member states. As previously reported, Spain is the furthest away from its Kyoto target in the EU-15.

Outside the EU, emissions continued to increase in 2007. The strongest increase was in Turkey (+12%). Emissions in Canada and the US were up by 4% and 1.4% respectively. Australia's emissions increased by 1.3%. Japan's emissions rose by 2.4%, according to the data.

UN climate chief Yvo de Boer said industrialized countries' emissions remained "worrying" despite an expected momentary decline because of the economic downturn. The data "underscores, once again, the urgent need to seal a comprehensive, fair and effective climate change deal" in December.

The UNFCCC also released a report on Kyoto credits traded by industrialized countries in 2008, including AAUs. These countries have 55 billion tons of credits in their accounts, some of which were traded last year. Trading will significantly increase in the coming years, the UNFCCC says.

92. Climate Talks in the Balance

Prospects for a new U.N. climate pact in December remained in the balance after talks among big emitters but with signs of action by Brazil, India and Australia. "It's more do-able today than yesterday," British energy and climate secretary Ed Miliband said at the close of a two-day meeting of 17 emitters that account for about 80 percent of world greenhouse gases.

"It remains in the balance in my view."

Todd Stern, Washington's climate envoy who co-hosted the meeting, echoed hopes of a deal despite sluggish progress in 190-nation talks meant to end with a new pact to fight global warming in Copenhagen in December.

"More progress needs to be made but we think that something can be done," he said.

Both he and Miliband said there was no "Plan B," for example to delay Copenhagen into 2010.

Earlier, British Prime Minister Gordon Brown urged world leaders to go to Copenhagen for the December 7-18 meeting, up to now intended as a gathering for environment ministers. "Leaders

must engage directly to break the impasse," he told the talks. "I've said I'll go to Copenhagen, and I'm encouraging them to make the same commitment."

Talks are bogged down in disputes between industrialized and developing countries over how to share out curbs on emissions, mainly from burning fossil fuels. Just one week of formal talks remains before Copenhagen, in Barcelona in early November.

The U.N. talks launched in Bali, Indonesia, in 2007 are stuck on how big carbon cuts recession-hit rich countries should make by 2020 and how much they should pay developing countries to fight global warming.

Away from the meeting, Brazil, Australia and India took steps that could help inch toward a deal. Brazil's President Luiz Ignacio Lula da Silva said that Brazil wanted to forge a common position among all Amazon basin countries for Copenhagen and was considering inviting presidents of all Amazon states to discuss the issue on November 26. Brazil is considering freezing its total greenhouse gas emissions at 2005 levels.

In Canberra, Australian Climate Minister Penny Wong said the government would bring carbon trade legislation back to parliament and will demand a vote on the controversial laws before the end of November. The conservative opposition on Sunday demanded changes to the scheme, already rejected once by the upper house, to avert a second defeat that would give Prime Minister Kevin Rudd an excuse to call a possible snap election. The government, which is ahead in opinion polls and could benefit from an election, wants to start carbon trading from July 2011, putting a price on greenhouse gas and helping curb emissions in one of world's highest per capita polluters.

And an Indian newspaper said Environment Minister Jairam Ramesh wanted New Delhi to accept curbs on the country's rising carbon emissions, dropping insistence that they should hinge on new finance and technology from rich nations. "We should be pragmatic and constructive, not argumentative and polemical," The Times of India quoted Ramesh as writing in a letter to Prime Minister Manmohan Singh. India, China and other big developing countries fear they will be hard hit by climate change and say it is in their national interest to limit the effects of more extreme droughts, floods, rising seas and melting glaciers that feed major rivers.

A big sticking point for Copenhagen is that the United States, the only industrialized country outside the current Kyoto Protocol for curbing emissions, is struggling to pass carbon-cutting laws by December. "I don't want to speculate about what happens if it doesn't go all the way," Stern said.

And in Cape Town, South Africa pointed to one area of soaring emissions -- next year's soccer World Cup. Emissions would leap almost tenfold from a 2006 benchmark set by Germany, partly because air travel would be added to the count.

93. Little Headway Made as Bangkok Talks Close

As 12 days of United Nations-sponsored climate change talks came to a close on October 9th, rich and poor countries remained divided over the central issues of financing for climate change initiatives and mandatory reduction targets for greenhouse gas emissions.

The reality of domestic politics also came to the fore, as Jonathan Pershing, the U.S. deputy special envoy for climate change and head of the U.S. delegation in Bangkok, warned that the

United States may not sign an international agreement until domestic legislation on climate change currently working its way through Congress becomes law. "It would be very difficult for the U.S. to commit to a specific number until there is action from Congress," Pershing said. "That does not mean we cannot participate in these forums, and that does not mean an agreement in Congress won't come before Copenhagen. But until there is an agreement, we cannot agree to a final outcome."

Yvo de Boer, executive secretary of the U.N. Framework Convention on Climate Change, said the meeting in Bangkok made "important progress regarding the technical framework ahead of Copenhagen in the areas of adaptation and finance, and technology transfer." Delegates narrowed down frameworks for oversight of a fund to help developing nations adapt to climate change, created categories for payments and pledges from countries to provide seed money at a future date, and agreed to broad terms for technology transfer. They also discussed the issue of how to track greenhouse gas emissions related to air and sea transport.

Delegates also voted to have Mexico City host the 16th Conference of the Parties (COP-16) to the UNFCCC at the end of 2010.

But it was the finger pointing between rich and poor countries that became the dominant issue at the Bangkok meetings, formally known as the Ninth Ad-hoc Working Group on the Kyoto Protocol (AWG-KP) and the Seventh Ad-hoc Working Group on Long-term Cooperative Action (AWG-LCA) under the UNFCCC. In the final days of the talks, a group of senior delegates from China and the Group of 77 developing nations walked out of the meetings to protest proposals that would require developing nations to take steps to control emissions after 2012.

Currently, two main draft texts—the Kyoto Protocol (KP) draft and the Long-term Cooperative Action (LCA) draft—are under consideration in U.N. talks. The KP draft would expand on and lengthen the terms of the current Kyoto Protocol. The LCA draft is wider-ranging and could include obligations for a larger group of countries than just the mostly wealthier nations that were required to take action under the Kyoto Protocol.

Under the protocol, Annex I countries are required to reduce their greenhouse gas emissions from 1990 levels by an average of 5.4 percent during the 2008–2012 compliance period. By the end of 2008, however, Annex I nations had reduced their overall emissions by only 1.2 percent, with most of the reductions coming from former Soviet bloc countries, whose economies collapsed after the 1990 benchmark year.

Pershing, the lead U.S. envoy in Bangkok, said the United States prefers a one-document solution. For the United States, that means the LCA text, since it never ratified the Kyoto Protocol. Earlier in the week, Pershing also said that the United States had no intention to sign on to a document based on the 12-year-old Kyoto Protocol.

The United Nations' de Boer called the discussion about a possible merger or fusion of the KP and LCA tracks a "distraction." He urged delegates to stay focused on the key substantive issues, such as funding for adaptation projects and the level and extent of efforts to curb worldwide emissions, which he believes will be solved only with political will. "Spending too much time thinking about the merits of one text or two texts is like trying to figure out what color wrapping paper to use for a gift you have not yet bought," he said. But most participants in Bangkok predicted that a single document in which all countries are required to take some action likely will emerge at some point.

With the Bangkok talks over, only five days of negotiations remain—at November consultations in Barcelona—before COP-15 begins in Copenhagen December 7th. Speculation circulated in Bangkok that additional negotiation days could be added to the calendar, either by lengthening the Barcelona meetings, currently set to run from November 2–5, or by starting the Copenhagen summit early. In addition, there was some discussion of the possibility of extending the COP-15 into 2010, for what could be a COP-15bis session, should talks in Copenhagen fail to yield a final agreement. Yves de Boer said the Copenhagen meeting could leave some parts of the final agreement “incomplete,” with an eye toward finishing those six months later.

94. Five Major Shipping Bodies Back Emissions Trading

Shipping associations in Belgium, Sweden, Norway, the UK and Australia have come out in support of reducing the sector's greenhouse gas emissions through a cap-and-trade scheme. They have issued a discussion paper detailing options for implementing such a scheme which highlights two possible frameworks: a sectoral approach and a 'distributed' auction approach. Among other things, it details how carbon credits would be allocated, and how emission reductions would be monitored and verified.

The five shipping bodies call for a global and open emissions trading scheme. This is the best way of achieving a real and lasting reduction in CO₂ emissions from shipping over and beyond efficiencies in ship design and operation, the associations say.

The associations urge governments meeting at December's UN climate summit in Copenhagen to agree on a cap-and-trade scheme for shipping, but say the details should be agreed later under the auspices of the International Maritime Organization (IMO).

It is vital that any emissions trading regime is implemented without driving goods to other modes of transport, which would increase overall emissions and damage commercial shipping, said UK Chamber of Shipping president Jesper Kjaedegaard.

Shipping and aviation are the only industry sectors not regulated under the Kyoto Protocol, which sets targets for greenhouse gas emissions by rich countries from 2008-12. The seaborne sector accounts for nearly three percent of global carbon dioxide (CO₂) emissions.

Carbon markets allow polluters to buy rights to emit greenhouse gases such as carbon dioxide and are often seen as more politically acceptable than carbon taxes. Under cap and trade schemes, companies or countries face a carbon limit. If they exceed their limit they can buy allowances from other polluters which stay under their cap.

Robert Ashdown, head of the UK Chamber of Shipping's technical division, estimated an emission trading scheme would cost the seaborne industry 5 billion Euros (\$7.39 billion) to 6 billion Euros a year, depending on the price of carbon. The proposals presented said the trading scheme should be determined by a 100 percent auctioning process of credits.

It offered two options for the mechanism -- the first would be treat shipping as a country in its own right which would mean the sector would be given a specific amount of credits.

The other option presented would allow for the number of credits earmarked to be determined by the number of sales of bunker fuel sold by governments at auction to shipping firms. The proposals did not set targets.

95. Pratt & Whitney Developing Hyper-Fuel-Efficient Jet Engines

As the military increases its efforts to wean itself off a dependence on foreign oil, officials with the top aircraft engine manufacturer Pratt & Whitney say the company is working to develop jet engines that could someday deliver a 35-percent increase in fuel efficiency over today's fighter jet engines.

For decades, the aviation industry was focused on delivering fighter engines with massive thrust-to-weight ratios. Now, however, the "holy grail" for engine makers is fuel efficiency. This is because tactical fighter engines such as Pratt & Whitney's F-135 Joint Strike Fighter power plant are likely to be powerful enough for the foreseeable future. However, in today's wars, there is a growing demand for engines with long legs and the ability to loiter over a target area, according to Reed. This means that unmanned drones and other intelligence or attack aircraft can reach remote battlefields and stay there for hours or potentially days while relying on a fraction of today's refueling infrastructure.

To do this, Pratt & Whitney is using special super-alloys and cooling technology to develop engines that are capable of burning fuel more efficiently by running at extremely high pressures and temperatures.

96. Ghosn, Immelt See Future for Electric Cars

A world where electric cars running on clean power is getting closer, corporate leaders said, the day after an electric car battery maker raised much more than expected in an initial public offering. Carlos Ghosn, chief executive of France's Renault SA and Japan's Nissan Motor Co Ltd, told a panel discussion at the Clinton Global Initiative that zero-emission cars, such as those that run on electricity, are critical as countries seek to cut their greenhouse gas emissions while increasing numbers of people take to the road.

"You have to go to zero-emissions in order to sustain mobility," Ghosn said at the philanthropic summit, adding that Nissan has "a breakthrough" that can accelerate the industry closer to that goal. "The only question is, 'Are we ready now or should we wait for five more years until we have better technology and lower cost?' We think the time is now," Ghosn said.

Japan's No. 3 automaker and its French partner have been the most aggressive proponents of pure electric vehicles in the auto industry, announcing plans to mass-market the clean but expensive cars globally in 2012. In August, the alliance unveiled a zero-emission, hatch-back vehicle called "Leaf".

Ghosn said on Thursday that unlike earlier electric cars, current battery technology is more advanced, making electric cars as cost-efficient as gasoline-powered cars.

"You don't have to be punished by driving an electric car," said Ghosn, who spoke on a panel about infrastructure.

He said a huge public investment is not necessary to bring electric cars to the mass market. Though he did say there needs to be cooperation between the public and private sectors, in the way of standardization, so a ramping up can begin.

General Electric Co Chief Executive Jeffrey Immelt, on the same panel, applauded Ghosn's efforts with electric cars. "I'd be long on battery technology," Immelt said. "I think it's a question of when, not if, it's going to happen."

Immelt is not the only one betting on battery technology. Shares of lithium-ion car battery maker A123 Systems Inc jumped as much as 41 percent in their market debut on NASDAQ. The company, founded by scientists linked to the Massachusetts Institute of Technology, raised more in its initial public offering than expected.

Companies working on batteries for hybrid and electric vehicles also include South Korea's LG Chem Ltd; Germany's Continental AG; Japan's Sanyo Electric Co Ltd; and JCI-Saft, a joint-venture between Johnson Controls Inc and France's Saft Groupe SA.

GE's Immelt said investing in electric cars needs to be accompanied by investing in cleaner energy, such as nuclear power. "If you project out 30 or 40 years, it's hard to simultaneously root for Carlos (Ghosn) and root against the reemergence of the nuclear industry," Immelt said. "It will create a demand for clean energy."

97. Arctic Ice Melts to Third-Smallest Area on Record



Photo: NASA

The summer retreat of sea ice over the Arctic is shown in this combination of images from animation stills modeled from July 1, 2009 and September 7, 2009 from the National Snow and Ice Data Center, released On September 17, 2009.

The Arctic's sea ice pack thawed to its third-lowest summer level on record, up slightly from the seasonal melt of the past two years but continuing an overall decline symptomatic of climate change, according to U.S. scientists.

The range of ocean remaining frozen over the northern polar region reached its minimum extent for 2009 on September 12, when it covered 1.97 million square miles (5.1 million square km), and now appears to be growing again as

the Arctic starts its annual cool-down, the National Snow and Ice Data Center reported.

That level falls 20 percent below the 30-year average minimum ice cover for the Arctic summer since satellites began measuring it in 1979, and 24 percent less than the 1979-2000 average, the Colorado-based government agency said.

This summer's minimum represents a loss of about two-thirds of the sea ice measured at the height of Arctic winter in March. By comparison, the Arctic ice shelf typically shrank by a little more than half each summer during the 1980s and 1990s, ice scientist Walt Meier said.

The lowest point on record was reached in September 2007, and the 2009 minimum ranks as the third smallest behind last year's level. But scientists said they do not consider the slight upward fluctuation again this summer to be a recovery. The difference was attributed to relatively cooler temperatures this summer compared with the two previous years. Winds also tended to disperse the ice pack over a larger region, scientists said. "The long-term decline in summer extent is expected to continue in future years," the report said.

The U.S. government findings were in line with measurements reported separately by the Nansen Environmental and Remote Sensing Center in Norway, which reported this summer's minimum ice extent at just under 5 million square km (1.93 million square miles).

Scientists regard the Arctic and its sea ice as among the most sensitive barometers of global warming because even small temperature changes make a huge difference. "If you go from a degree below freezing to 2 degrees above freezing, that's a completely different environment in the polar region," Meier said. "You're going from ice skating to swimming. Whereas if you're on a tropical beach and it's 3 degrees warmer, you probably wouldn't even notice it."

Scientists have voiced concern for years about the alarming decline in the size of the Arctic ice cap, which functions as a giant air conditioner for the planet's climate system as it reflects sunlight back into space. As a greater portion of the ice melts, larger expanses of darker sea water are exposed, absorbing more sunlight and adding to the global warming effect attributed to rising levels of heat-trapping greenhouse gases emitted into the atmosphere by human activity.

Scientists monitor Antarctic sea ice as well, but the Arctic is considered a more critical gauge of climate change because more of the northern sea ice remains frozen through the summer, playing a bigger role in cooling the planet.

98. Honda Sticks to Fuel-Cell Car Target

Honda Motor Co will maintain the target for lease sales of its newest fuel-cell car after over a year since its launch despite the challenge of boosting productivity, the model's chief engineer said. Honda's FCX Clarity, a sporty-looking fuel-cell sedan, is still a long way from mass production, the key to pushing prices lower, with a total of only 10 cars on the road in the United States and in Japan.

Honda, Japan's second-biggest auto maker, has said it is targeting lease sales of about 200 cars in the first three years in the two countries combined. It aims to have the cars ready for sale in showrooms by 2015.

Fuel-cell vehicles are considered by some as the ultimate longer-term alternative to today's conventional cars as they run on a clean and inexhaustible source of fuel, hydrogen, emit only water vapor and do not compromise driving performance.

Among automakers, Honda and its bigger rival Toyota Motor Corp were the world's first to put vehicles powered by fuel cells -- devices that produce electricity from hydrogen using a chemical reaction -- on the road in December 2002.

Still, the most difficult part is how to raise productivity, in particular for building the core part, fuel cells, as Honda is on the last and toughest part of the road toward commercialization, Sachio Fujimoto, FCX Clarity's chief project manager, said. "Everyday there's progress," Fujimoto said at the Reuters Global Climate and Alternative Energy Summit. "We would like to maintain the target (for 200 cars). It's my own dream to make fuel cell vehicles for the ordinary motorist. I would like to make the age of the fuel cell cars begin in earnest as early as possible," he said in an interview.

FCX Clarity's fuel cell stack is in a metal box slightly bigger than a suit case, and small enough to be located in the aisle between front seats. The weight is 67 kg and its power capacity of 100 kilowatt is enough to supply electricity to 20 to 25 households.

Fujimoto said platinum and other costly precious metals are used as a catalyst in the stack, an element increasing manufacturing costs of fuel cell vehicles. But that is not the main element; the lack of mass-production know-how is, he said.

"As for FCX Clarity, the biggest issue is that we cannot make so many stacks," said Fujimoto, who switched his job to the fuel cell vehicle development in 1998 from that of combustion engines. To make hundreds of cells for a fuel cell stack in a stable manner, for example, requires a different type of know-how from car manufacturing, a type similar to that of semiconductor chip making, Fujimoto said.

Asked how far Honda's development process toward the mass production has come, Fujimoto used an example of climbing a mountain to explain. "The four stages out of the five in total are behind us. We're now at the beginning of the last and the steepest path to the top," he said.

FCX Clarity is almost comparable to the performance of conventional cars as it can run for as many miles and in temperatures as low as 30 degrees Celsius below zero (-22 F).

"The path on return from the top would be crowded with rivals fighting for a bigger slice of the share," he said, adding that automakers in Japan, Europe and the United States are expected to start general sales of the zero-emitting type around 2015. "I don't think our commencement will lag behind or come much earlier than that year," he said.

"The model on the sale by then would be an advanced rival of FCX Clarity, or something more progressed from FCX Clarity," he said but declined to comment further.

The problem of how to build a wider network of costly hydrogen fuelling stations would be solved if and when fuel cell vehicles are sold and spread, Fujimoto added.

99. Has the Time Finally Come For Diesel Hybrids?

The combination of electric motors and diesel engines has worked well in locomotives and heavy trucks for years, but carmakers haven't been successful in getting beyond the concept car stage for light duty vehicles but that may change.

The premium paid for diesel engines and additional cost of an electric motor has scared off auto manufacturers. However, the two powertrains have compelling complementary performance characteristics. For city driving, electric motors (powered by batteries that recapture energy from frequent braking) provide needed acceleration. Diesel engines thrive in comparison to gasoline engines when hauling heavy loads and maintaining highway speeds.

Peugeot says that in 2011 it will bring to Europe the 3008 Hybrid4 sedan. The 2.0 liter engine vehicle is being optimized to minimize carbon emissions, with the company claiming it puts out only as much CO₂ as a small city car. The company is also showcasing a plug-in RCZ HYbrid4 Concept Coupe. Peugeot's sister company, Citroen, will reportedly leverage the technology in the DS5 car, which could arrive in 2011.

BMW is also in the mix with a concept plug-in diesel hybrid with the Vision EfficiencyDynamics concept. The performance car's unique spin has two electric motors, one for each set of wheels. Mercedes Benz has multiple diesel hybrids in the works, the S 400 BlueHYBRID due out in 2010, the C 300 BlueHYBRID, due out in 2012, and the E 300 BlueHYBRID, which may or may not come to pass.

They reflect a growing interest in designing vehicles that don't skimp on performance while achieving great fuel economy. "Performance" hybrids have had mixed success thus far in the U.S. While the Lexus hybrid models have been successful, the Honda Accord Hybrid was a failure, and was discontinued after a few years.

Diesel engines continue to be mostly reserved for the truck and bus lane in the U.S., with the exceptions in 2009 passenger vehicles from Volkswagen, BMW and Audi. If VW has success in reintroducing American buyers to relatively inexpensive diesel vehicles, momentum could shift.

Volvo's first production plug-in hybrid, to be on European roads by 2012, will be a diesel with 30 miles of all-electric range. It will also have a whopping 745 miles of range on batteries plus the diesel engine and what Volvo says is the fuel economy equivalent of more than 120 miles a gallon. No decision has been reached about a possible American version.

The projected fuel economy is calculated to include the car's operation on batteries alone, when it consumes no diesel fuel. Similarly, the plug-in hybrid's estimated carbon dioxide emissions — just 49 grams a kilometer — benefit from its time in zero-emission mode.

Volvo says plug-in hybrids are part of its "DRIVE Towards Zero" strategy to meet low carbon targets and eventually produce cars with no exhaust emissions. The company said it would devote about \$2 billion from 2006 to 2014 to reduce emissions and improve fuel economy.

Volvo's intent to produce a plug-in hybrid by 2012 is not new, but the particulars of the car are fresh. Volvo started its program, known as the V-Squared Plug-in Hybrid Vehicle Partnership, with the Swedish energy supplier Vattenfall in 2007. The partnership has yielded a handful of prototype V70-based plug-in hybrid station wagons. A company spokesman, Dan Johnston, said in an interview that 200 of those early versions would be produced within the next nine months, many to be used in Vattenfall utility operations.

In at least one of the test versions, the diesel engine produces 205 horsepower and the electric motor 100 horsepower. The 11-kilowatt-hour battery pack in the test cars can recharge in five hours on 220-volt electricity.

Volvo said that it had decided “plug-in hybrids will be commercially viable for certain customer categories in 2012.” It is postponing a decision on producing a diesel hybrid that can’t plug into the wall.

100. UNEP Chief Calls for Reduction of Non-Carbon Greenhouse Gas Emissions

Governments should move quickly to reduce non-carbon dioxide greenhouse gas emissions, the head of the United Nations Environment Program (UNEP) said on September 4th. Speaking in Geneva on the sidelines of the Third World Climate Conference hosted by the World Meteorological Organization, UNEP Executive Director Achim Steiner said a “growing body of science points to a potentially significant role” played by non-carbon emissions in contributing to rising global temperatures.

According to UNEP, scientists estimate that almost 50 percent of the emissions causing global warming in the 21st century are non-carbon dioxide pollutants ranging from black carbon and low-level ozone to methane and nitrogen compounds.

Steiner said emissions of the pollutants in question could be reduced more quickly than carbon dioxide emissions and would yield more immediate results. “A number of these greenhouse gases not only lend themselves to faster action with very quick impacts [but] some of these, if dealt with or addressed, can disappear within a matter of days, weeks, or years,” Steiner said.

“The multiple benefits in health terms, in economic terms, and in agricultural production terms are equally compelling to act on them,” the UNEP chief added.

Steiner's comments came less than 100 days before negotiators are scheduled to meet in Copenhagen in hopes of approving a successor agreement to the Kyoto Protocol on reducing greenhouse gas emissions.

“We are confronted over the last two years with a growing body of science which is telling us that global warming is in fact occurring at faster rates and at a larger scale” than previously estimated, Steiner said.

Black carbon is emitted from the inefficient burning of biomass cooking and from diesel engines and coal-fired power plants. Other major non-carbon dioxide emissions sources include the burning of forests, savannas, and crop residues, UNEP noted.

Researchers have estimated that the warming impact of black carbon emissions is 20 percent to 50 percent that of carbon dioxide, UNEP said. Especially damaging are the black carbon emissions that end up on snow and ice in places such as the arctic and the Himalayan Tibetan Plateau.

Low-level ozone, which occurs from the ground up to 15 kilometers (9.3 miles) in altitude, is generated when nitrogen oxides react with volatile organic compounds. UNEP said researchers estimate the contribution of low-level ozone to the greenhouse effect could range from 15 percent to 20 percent that of carbon dioxide.

UNEP said elevated concentrations of nitrous oxide alone are responsible for about 4 percent of climate change.

101. Steps by Developing Nations to Fight Climate Change

Major developing nations have announced steps over the past year to curb their growing greenhouse emissions as the world tries to negotiate a broader, and tougher, U.N. pact to slow the pace of climate change.

Rich nations have demanded China, India, Brazil and others to set binding emissions reduction targets to help seal a global climate deal in December, but poorer nations instead say they will take steps according to their abilities.

Following are actions or pledges by leading developing nations.

CHINA

-- Government aims to cut energy consumption per unit of GDP by about 20 percent by 2010 compared with 2005 levels, which it says will save more than 1.5 billion tons of carbon dioxide (CO₂) from being emitted.

-- Goal for renewable energy to account for 15 percent of total energy consumption by 2020. Wind power generation is forecast to rise to 100 gigawatts by 2020 and the official forecast is 1.8 gigawatts for solar, though this may be conservative.

-- Fuel economy standards among toughest in the world.

-- Top climate diplomat said last month he wants to see emissions peak as soon as possible and major Chinese study released in August called for the government to set firm targets to limit greenhouse gas emissions so that they peak around 2030.

INDIA

-- Government has pledged to ramp up investment in renewables and has set a solar power target of 20 gigawatts by 2020, up from a fraction of that now.

-- Aims for energy efficiency targets for more than 700 industrial operations as a step toward a national trading system centered on energy efficiency certificates.

-- Enforce energy efficiency for appliances, lighting, and power distribution transformers.

-- Mandatory fuel efficiency standards for the transport sector by 2011.

MEXICO

-- Plans to put a detailed offer to cut growth of its greenhouse gas emissions at climate talks in Copenhagen in December.

-- President Felipe Calderon said in June Mexico would voluntarily cut 50 million tons of verifiable annual emissions by the end of his term in 2012 by bolstering efficiency in the state-run electricity and oil industries and improving rural land use. But CO₂ emissions from the oil industry soared in 2008.

-- Agreed with the United States and Canada to build infrastructure to cooperate on CO2 emissions trading.

BRAZIL

-- To announce targets to substantially curb carbon emissions. Announcement to come before the Copenhagen meeting.

-- Last year presented a plan to slash Amazon deforestation in half over 10 years and thereby avoid the release of 4.8 billion tons of CO2.

-- Will announce on September 17 new restrictions on sugar cane planting and ban new cane mills in the Amazon rain forest and the Pantanal wetland area in the country's west.

SOUTH KOREA

-- Unveiled plan in August to opt for a voluntary 2020 reduction target. To decide on three options with a minus-four percent target by 2020 from 2005 levels being the most ambitious.

-- Also plans to trial emissions trading and tax incentives to achieve the 2020 goal, boost use of hybrid cars and renewable energy and increase nuclear power output as part of steps to spark a "green revolution" of the economy.

INDONESIA

-- Government-backed National Climate Change Council in August set out roadmap for government to adopt measures in forestry, energy, transport and industry to slash greenhouse gas emissions by 2030.

-- Created government-backed clean technology fund to ramp up renewable energy investment.

-- Government is a leading supporter of U.N.-backed forest preservation scheme called REDD that aims to reward developing nations with valuable carbon credits for saving forests.

-- Government has crash program to add 10,000 megawatts of power through coal and renewable energy such as geothermal power.

102. Obama, Ban Ki-Moon Raise Stakes on Climate Change

As leaders from around the world descended on New York City for the U.N. General Assembly, traffic followed. Police closed off arteries throughout Manhattan's well-heeled East Side for security reasons, leaving taxis, delivery trucks and confused tourists stranded along Park Avenue. It's just another September in New York.

But the streets weren't the only place hit by gridlock. Negotiations over a new global climate-change treaty to replace the expiring and flawed Kyoto Protocol - meant to culminate at the U.N. climate-change summit in Copenhagen at the end of the year - have all but ground to a halt in recent months. Despite the election of U.S. President Barack Obama, who pledged to reverse eight years of climate inaction by former President George W. Bush's Administration, developed and developing nations remain gridlocked over who should be cutting carbon emissions - and who should be paying for it. Yvo de Boer, the head of the United Nations Framework

Convention on Climate Change (UNFCCC), told reporters on September 21st that the wording for a new agreement now being negotiated is "an absolute mess" so full of contradictions U.N. staff said it couldn't even be translated. "Climate-change policy tends to be a roller-coaster ride, but it seems to be getting rougher and rougher," he said.

For U.N. Secretary-General Ban Ki-moon, who has made climate change one of his top priorities, it was time to raise the stakes. On Sept. 22nd, Ban held a high-level conference on climate change at U.N. headquarters that included Obama and Chinese President Hu Jintao. With less than 70 days remaining before the Copenhagen summit begins, the message was unusually clear: There is no more time to waste. "The world's glaciers are now melting faster than human progress to protect them - and us," Ban told the assembled leaders.

When the session ended several hours later, Ban struck a more optimistic note, telling delegates at the U.N. that "momentum had shifted for a global deal in Copenhagen." But the truth is that there remains a great deal of uncertainty that needs to be cleared up between now and December. No one expected a one-day meeting in the U.N. to solve global warming. But Ban's conference did provide some clues about where global climate-change policy is heading and which countries will be taking the lead.

Obama was the first head of state to address the meeting, and even though he only spoke for a few minutes, his rhetoric was a dramatic departure from Bush's denial and dissembling. Obama stated clearly that climate change was real, and unless the world rose to action, it was potentially catastrophic. "The security and stability of each nation and all peoples - our prosperity, our health, and our safety - are in jeopardy," he said. "And the time we have to reverse this tide is running out."

Yet even while Obama talked up the importance of the Copenhagen process and hyped his Administration's domestic initiatives on climate change, including new rules that would limit greenhouse-gas emissions from automobiles, many environmental groups came away from his speech underwhelmed. Obama made no mention of specific targets for U.S. emissions cuts at Copenhagen, nor did he agree to attend the summit himself - as British Prime Minister Gordon Brown has done. He spent much of his speech focusing on the need for major developing nations like China to make their own moves on climate change, which sounded a little hypocritical after years of American foot-dragging. "It was great to have a visionary speech with the right word from Obama," says Steve Howard, the CEO of the Climate Group, an international nonprofit group focused on global warming. "But with so little time left, we needed more substance."

But the truth may be that Obama doesn't have much scope for substance, because he is to some extent a prisoner of Congress. The White House doesn't want to repeat the mistake made by former President Bill Clinton with the Kyoto Protocol by agreeing internationally to emissions cuts that have no support at home. That means Obama has to wait for Congress to act - and although the House passed a carbon cap in June, there's little chance of the Senate acting on the bill before the end of the year. That leaves Obama - and global climate negotiations - at the mercy of U.S. lawmakers. "We want a comprehensive package, and we're doing everything we can to make that happen," said Obama's climate-change czar Carol Browner. But right now the ball is in Congress's court.

If the U.S. is half of the solution to Copenhagen, then China - now the world's top carbon emitter - is the other half. Massively polluting, building a couple of coal-fired power plants every week,

China is a convenient scapegoat for American politicians who don't want to make the first move on climate change. But as Hu made clear in his Sept. 22 speech, China is serious about confronting climate change. The country spent an estimated \$221 billion in economic stimulus on green initiatives, more than any other nation. At the U.N., in addition to promising to raise its renewable energy share to 15% by 2020, Hu pledged that China would cut its carbon emissions by a "notable margin" by 2020. "Out of a sense of responsibility to its own people and people across the world, China has taken and will continue to take determined and practical steps to tackle this challenge," he said.

Meanwhile, China's neighbor Japan came out with the most aggressive carbon-emission cuts in the world. Japan's new Prime Minister, Yukio Hatoyama, pledged to reduce Japan's carbon emissions 25% below 1990 levels by 2020. Although European nations have long promised to cut their own emissions by 20% and potentially more, Japan is the most energy-efficient large economy in the world, and is poised to become a living laboratory for fighting climate change. "I am resolved to exercise the political will to deliver on this promise," said Hatoyama, whose party in recent elections overthrew the Liberal Democratic Party that has run Japan for decades. (See pictures of Earth from space.)

Indeed, leadership on climate change may be shifting to the East. Hu emphasized that China's economic policies would continue to promote the country's rapid development, and it isn't clear just how ambitious China's emissions cuts will be. As Todd Stern, the U.S.'s top climate diplomat, told reporters on Tuesday: "It all depends on what the numbers will be." But from the outside, it looks like China is forging ahead while the U.S. remains mired in domestic politics. "The question is whether [China] will prompt Obama and the Senate into action before Copenhagen," says Annie Petsonk, international counsel for the Environmental Defense Fund.

Big business is often characterized by many climate-change activists as the bad guy. But while politicians, especially those in the U.S., have been slow to grapple with global warming, many corporations have been moving ahead on their own. They're cutting carbon emissions at rates higher than any government and improving energy efficiency for the sake of their own profits. "Businesses need to deal with climate change, and they need regulatory certainty and simplicity from governments," says Charles Holliday, the chairman of DuPont.

Holliday was one of a number of CEOs who came to the U.N. on Sept. 22 to mingle with world leaders and press them on climate change. Meanwhile the International Air Transport Association reiterated a pledge to cut its own carbon emissions in half by 2050 over 2005 levels. For airlines, like other businesses, the realities of climate change can't be ignored - a world where resources are scarcer and temperatures are rising will demand other ways of doing business, or companies will go out of business. "We all should realize that carbon has a cost," says Jeffrey Swartz, CEO of the shoe company Timberland.

Despite signs of progress at U.N., the prospects for success at Copenhagen are still cloudy. How poor countries should be aided in adapting to climate change, how to prevent tropical deforestation and especially what level of emissions cuts developed nations will agree to are all issues that have yet to be resolved. "I'm getting mixed signals," says Kandeh Yumkella, director-general of the U.N. Industrial Development Organization, who was backstage lobbying politicians at the summit.

The one undoubted benefit of the U.N. meeting is that it put climate change back in the headlines, at least for a day. Between the recession, the wars in Afghanistan and Iraq, the problems with Iran - even the fact that it hasn't been a dramatically warm year for much of the

world - climate change had dropped somewhat on the international agenda. That will always be a risk for this most long-term of challenges, where the penalties and payoffs of policy changes will unfold over decades. "The true test of leadership is to take the long view," Ban said.

In fact, leaders have had no problem taking the long view on climate change; G-8 nations have agreed to reduce global emissions 50% by 2050. But as India's Environment Minister Jairam Ramesh told reporters, "It's the height of dishonesty to have a target for 2050 because none of us will be around to be held accountable." What the world really needs is for its leaders to think short term, to make the hard pledges that are required to start bringing global carbon emissions down. They can start at Copenhagen. And they should remember the words of Mohamed Nasheed, the President of the Maldives, whose small island country literally risks being erased from the planet by rising sea levels. "We are talking about not living because of climate change," he said on Sept. 21. "We are going to die. Don't do this to us." Not as eloquent as Obama's words - but far more urgent.