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CAR LINES

Issue 2000-5 October 2000

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EUROPE

1. Shell Chief Heads G8 Renewable Energy Task Force

Mark Moody-Stuart, chairman of Anglo-Dutch oil giant Royal Dutch/Shell Group, has been appointed co-chair of the G8 Renewable Energy Task Force, British Prime Minister Tony Blair has announced.

"Sir Mark has extensive experience in this field, including through the Shell Foundation's program on sustainable energy," Blair said.

From his vantage point at the head of one of the world's top three energy companies, Moody-Stuart will share the chairmanship with Corrado Clini, director general of the Environment Ministry in Italy, which takes over presidency of the G8 group of industrialized nations in January.

The task Force will report to next year's G8 summit in Genoa.

G8 heads of government agreed at their Okinawa summit to set up a task Force to identify the barriers hindering efforts to increase the level of renewable energy supply and distribution.

Shell recently launched the Shell Foundation, a new charity including a Sustainable Energy Program to support projects that either encourage environmentally cleaner energy use or help tackle poverty by providing sustainable energy to poor communities in developing countries.

2. UK Protest Over Petrol Price

British petrol prices shot up more than 40 percent between January 1999 and June 2000. Prices at the pump are the highest in Europe, with tax and duties swallowing up 75 pence of every pound spent on premium unleaded gasoline. In response some British motorists organized a "Dump the Pumps" campaign.

The campaign starting on August 1 and due to carry on every Tuesday afterwards seeks to put pressure on the Labor government via 24-hour boycotts on the front end of the petrol business.

Organizers do not expect motorists to buy less petrol - drivers can fill up on any other day - but they want empty filling stations to send a powerful signal.

The goal is for the government to cut petrol taxes or to apply the levies directly to upgrading roads and Britain's creaking public transport networks.

Oil companies are not expected to suffer, leaving retailers - most independently owned - to bear the brunt of daily losses estimated at five million pounds ($7.5 million).

Recent falls in wholesale markets and a war by supermarket outlets have cut the cost, but prices above 80 pence per liter - $1.20 per liter or $4.50 per U.S. gallon - are not uncommon.

In the United States, drivers pay less than $2 a gallon.

Of the 18-pence increase for a liter of petrol over the last 16 months, only two pence was due to duty hikes. The March budget included the lowest rise in petrol duty for 11 years and the government had abandoned its fuel escalator, which had committed it to pump up prices by a certain amount above the rate of inflation every year.

3. New Study Finds Significant Morbidity and Mortality Impacts

From Vehicle Related Air Pollution in Europe

While it has been well known for many years that air pollution contributes to mortality and morbidity, this newly released study reenforced the very significant public health risk associated with particulate air pollution[1]. The authors estimated the impact of outdoor (total) and traffic-related air pollution on public health in Austria, France, and Switzerland.

Epidemiology-based exposure-response functions for a 10 :g/m^3 increase in particulate matter (PM_{10}) were used to quantify the effects of air pollution. Cases attributable to air pollution were estimated for mortality (adults=>30 years), respiratory and cardiovascular hospital admissions (all ages), incidence of chronic bronchitis (adults =>25 years), bronchitis episodes in children (<15 years), restricted activity days (adults =>20 years), and asthma attacks in adults and children. Population exposure (PM_{10}) was modeled for each km^2. The traffic-related fraction was estimated based on PM_{10} emission inventories.

Air pollution caused 6% of total mortality or more than 40,000 attributable cases per year. About half of all mortality caused by air pollution was attributed to motorized traffic, accounting also for: more than 25,000 new cases of chronic bronchitis (adults); more than 290,000 episodes of bronchitis (children); more than 0Å5 million asthma attacks; and more than 16 million person-days of restricted activities.

This assessment estimates the public-health impacts of current patterns of air pollution. Although individual health risks of air pollution are relatively small, the public-health consequences are considerable. Traffic-related air pollution remains a key target for public-health action in Europe. These results, which have also been used for economic valuation, should guide decisions on the assessment of environmental health-policy options.

[1]Public-health impact of outdoor and traffic-related air pollution: a European assessment,
Lancet 2000; **356:** 795 - 801

4. Royal Commission Calls For Transformation in the Uks Use of Energy To Counter Climate Change

As a contribution to global efforts to prevent climate change running out of control, the United Kingdom should plan for a reduction of 60% over the next 50 years in the amounts of carbon dioxide it produces by burning fossil fuels according to a major new report published by the Royal Commission on Environmental Pollution. The report - *Energy – The Changing Climate* - explores what that will mean for industry and ordinary households, and how government policies need to change.

The amounts of carbon dioxide the UK emits are now significantly lower than in 1990, but much of the progress so far has been fortuitous.. The Commission welcomes the government's goal of a 20% reduction from the 1990 level by 2010 as a major step in the right direction. It recommends that this should become a firm target, but expresses doubts whether the measures at present proposed will achieve it. The UK lags far behind many other European countries in developing the renewable energy technologies that will become much more important in future, and in the very inefficient ways heat is supplied to homes.

The primary purpose of the report is to look

much further ahead than the UK's draft Climate Change Programme. The Commission highlights the difficulties there will be in maintaining a 20% reduction beyond 2010, let alone making much larger reductions. It emphasizes the need to start now on making reduction of carbon dioxide emissions a key factor in the planning and design of power stations and buildings of all types, many of which will still be in use in 2050. Ways have to be found of achieving sustainable solutions within liberalized energy markets, in which the emphasis has so far been on minimizing price per unit in order to maximize sales of energy.

At the moment, use of energy, predominantly in the form of oil, gas or coal, is continuing to increase, both worldwide and in the UK. The Royal Commission has investigated:

> the scope over the next 50 years for replacing fossil fuels by expanding the UK's use of renewable energy sources, such as wind power, solar energy and energy crops. Their use will have to expand to well beyond the 10% of electricity generation which the government has suggested as a target for 2010
>
> whether nuclear power could be part of the solution. Nuclear waste will first have to be dealt with to the satisfaction of the scientific community and the general public. People are unlikely to accept new nuclear power stations unless they are part of a strategy that also delivers radical improvements in energy efficiency and an equal opportunity for deploying renewable energy sources that can compete in terms of costs and reduced environmental impacts
>
> the potential for reducing the large losses within the energy system, especially the large amounts of heat wasted at power stations
>
> the potential for industry, households and motorists to make much more efficient use of energy
>
> the possibility that some of the carbon dioxide produced when fossil fuels are burnt could be recovered and piped safely away into geological formations under the seabed.

To show the scale of the changes required to achieve a 60% reduction in UK carbon dioxide emissions, the Royal Commission describes four scenarios for 2050 representing various combinations of these approaches. It emphasizes that these scenarios are illustrative. But all of them involve a reversal of the previous trend of growing energy use, and in three of them the total amount of energy used would have to be much less than today.

Some of the scenarios might involve significant changes in lifestyles. All involve constructing many new energy installations, with resulting impacts on the environment. The challenge climate change poses for the world is so fundamental however that a complete transformation in the UK's use of energy will be an essential part of an effective global response.

The Royal Commission's report makes 87 recommendations. Many of them are addressed to the devolved administrations in Scotland, Wales and Northern Ireland as well as to the government at Westminster. Among the 19 key recommendations are:

> a long-term program to cut considerably the energy used in buildings of all types

creation of a Sustainable Energy Agency to boost energy efficiency in all sectors and link that to the rapid development of renewable energy sources

a tax on fuels that give rise to carbon dioxide emissions (preferably Europe-wide), replacing the government's planned energy tax on industry and business

using the resulting revenue to reduce fuel poverty, as well as boost new and more sustainable technologies

a fundamental review of the financing, management and regulation of electricity networks (like the national grid), in order to encourage renewable energy sources and combined heat and power plants, serving whole neighborhoods or even individual houses

Quadrupling government support for energy-related research and development to bring it in line with the present EU average. Government expenditure on R & D fell by more than 80% between 1987 and 1998, and private sector spending appears to have fallen too.

Specifically with regard to transport, the Commission welcomed the government's Transport White Paper, which set out policies in line with many of the recommendations in its 18th and 20th reports. But it is disappointed at slow progress in implementing the measures required to curb traffic growth and regrets that successive governments have not devoted more of the revenues from the fuel duty escalator to developing alternatives to car use.

5. Toyota's Hybrid Prius About To Be Launched In Europe

Powered by an electric motor and a gasoline engine, the Prius will be launched in Europe from October with a target of 5,000 cars during the first year.

The electric motors are powered by nickel-metal hydride batteries made by Panasonic and are guaranteed for the vehicle's life. The 38-celled batteries will be recycled at the end of the car's life by one of three European companies: France's Societe Nouvelle d'Affinage des Metaux, Germany's Accurec or Switzerland's Batrec.

Under a new European Union law car makers will have to recycle or reuse 80 percent of a car's weight from 2006, rising to 85 percent by 2015. Around 75 percent of all material is already recycled or reused.

From 2007 manufacturers will have to take back without any charge any scrap car, regardless of when it was built.

The batteries now used are 60 percent smaller and 30 percent lighter than the first battery used in the Prius when it was launched in Japan in December 1997.

So far the company has sold 43,000 Prius cars. Sales began in the United States in June with 3,400 pre-orders.

Toyota is also using the nickel-metal hydride batteries to power its electric commuter vehicle e.com, a two-seater for urban driving. Any future mass production plans for the e.com will be made on the results of an experimental program being carried out testing community car-sharing at Toyota City in Japan.

6. EU Official Optimistic That EU Can

Meet Kyoto CO2 Target

The European Union is on target to meet its international commitment to reduce emissions of carbon dioxide and other gases that are thought to cause climate change, an EU official said at a press briefing in the Hague. A senior official at the EU's executive Commission told the news briefing that statistics due to be published in the coming weeks would show emissions of so-called greenhouse gases had stabilized at 1990 levels.

Under the Kyoto Protocol, a United Nations treaty agreed in Japan in December 1997, the EU committed to reducing its greenhouse gases by eight percent of 1990 levels by 2008-2012.

"Our calculations show that if we do what we promise to do in the fields of renewables, taxation, etc, in the (EU) member states and at Community level we are quite confident we will reach those levels," the official, from the Commission's environment department, said. The comments were made during a briefing to tell journalists that government negotiators at a conference in Lyon during September had made "good progress" on preparing the ground for a meeting of the world's environment ministers in The Hague in November.

The meeting will finalize the rules on how countries will meet their greenhouse gas targets.

Developed countries undertook to reduce emissions by an average of 5.2 percent of 1990 levels by 2008-2012 in an effort to combat the greenhouse effect which is thought to cause global warming.

The main sticking point left to hammer out at The Hague is how the treaty's "flexible mechanisms" such as emissions trading will work and whether there should be a limit to the extent these can be used to account for a country's Kyoto target.

7. EU Reaches Agreement on Ozone

European Union governments have agreed to set strict limits on ground-level ozone pollution. The draft law, agreed by environment ministers from all 15 EU countries, sets out pollution levels when the public authorities must inform the population that ozone concentrations are posing a threat to health.

It also sets a voluntary target that ozone concentrations must not be breached more than 25 times a year from 2010.

The draft law now returns to the European Parliament which has called for the limits to be made binding, a proposal dismissed by governments which say it is impossible to have complete control over ozone levels which can be caused by pollution generated in other countries.

Ground-level ozone is formed by the reaction of nitrogen oxides and volatile organic compounds, mostly from traffic emissions and industry. The EU agreed a law earlier this year to set binding ceilings on these emissions.

8. The Auto Oil II Process and Conclusions

The European Commission has presented the results of the 4-year Auto-Oil II program, aimed at finding the most cost-effective ways to reduce emissions from road transport. Emissions from road transport of the traditional, regulated pollutants are expected to have fallen to 20% of their 1995 levels by 2020, leading to a marked improvement in air

quality. On the other hand, some air quality problems such as particulate matter and ozone are a long way from being solved, so the report identifies particulate matter from diesel engines, dangerously high levels of localised nitrogen oxides and ozone as the major challenges for future policy.

During 1998 it became clear that Council and Parliament would in fact settle many of the 2005 standards. As a result, the Auto-Oil II Program was redirected in order to fulfil the following objectives:

Specifications for petrol and diesel fuels complementing the mandatory specifications for sulphur and aromatics

Environmental specifications for two- and three-wheeled vehicles

Provisions for improved roadworthiness testing of vehicles

Specifications for fuels used by captive fleets

Specifications for liquid petroleum gas, natural gas and bio fuels.

In view of the agreement reached between Council and Parliament on mandatory standards applicable from 2005, vehicle technology measures studied within Auto-Oil II were limited to the selected application of "advanced after-treatment systems" for certain categories of vehicles and to motorcycles. The introduction of "advanced after-treatment systems such as PM traps and DeNOx catalysts" was assumed to form part of the reference scenario after 2005 for passenger cars and light-duty vehicles. In the case of heavy-duty vehicles, it was assumed that PM traps would be introduced from 2005 whilst "DeNOx traps" would be fitted from around 2008. Possible measures relating to motorcycle technology distinguished between the different types and sizes of engines and included engine modifications, oxidation catalysts, direct injection, secondary air injection and three-way catalysts.

The Communication gives the current status of their further work and this is summarized below:

A. Light-duty vehicles

Cold start emissions from N1 Class II and III vehicles

A proposal has been discussed and agreed in principle within MVEG and it is expected to be adopted by the Commission during the coming weeks.

Improved roadworthiness testing

Commission work has been channeled towards the further development of OBD as an I&M tool to aid roadworthiness testing rather than improving roadworthiness emission testing procedures.

OBD thresholds for 2005/6

A technical study on behalf of the Commission is ongoing, and the Commission expects to adopt any necessary proposal on this issue during the first half of 2001.

Examination of the Type V test and the in-service conformity check

The "type V" test is an ageing test designed to verify the durability of anti-pollution devices. The Commission is waiting for experience on the effectiveness of the in-service conformity check system before taking a decision on the future role of the type V test.

Reference fuels

This issue is closely linked with the revision of Fuels Directive 98/70/EC, and in particular the question of whether further provisions relating to sulphur content will be made. A proposal is expected at the beginning of 2001, at the same time as the amendment of Directive 98/70/EC.

Enhanced durability testing

The emissions directive contains a list of measures that could be contained in legislation to come into force after 2005. One of these is the modification of the durability requirements, including an extension of the existing durability test. An extension in both time and distance of the durability requirements could constitute an important part of future environmental improvements.

B. Heavy-duty vehicles

The Heavy-duty directive 1999/96/EC envisages the adoption of further measures to take effect from 2005/6. These are:

Provisions relating to the development of on-board diagnostic (OBD) and on-board measurement (OBM) systems to monitor in-service exhaust emissions

Durability requirements and in-service control

Limits for non-regulated pollutants that "may become important as a result of the widespread introduction of new alternative fuels."

In addition the Commission is to report by 31 December 2002 on the current status of technology needed to meet the mandatory NOx standard for 2008. The Commission says it will start work on this in the near future, in order to give appropriate positive signals to industry concerning the prompt implementation of this standard.

C. Two- and three-wheeled vehicles

After a technical feasibility study the Commission has recently adopted Proposal COM (2000) 314 final to amend Directive 97/24/EC.

The proposal determines a unique set of emission limits (for 2-stroke and 4-stroke motorcycles) for CO, HC and NOx to be applied for type approval of motorcycles from 1 January 2003 for new vehicle types, and from 1 January 2004 for all new vehicles. The new limits represent important reductions with respect to present-day limits for HC and CO. New limit values for tricycles and quadricycles are also introduced.

Furthermore, the proposal sets out permissive limit values to be applied in order to provide an option for Member States that would like to stimulate more advanced environmental technology through the granting of fiscal incentives. The proposal envisages a second stage of emission limits to further reduce motorcycle emissions from the year 2006 on a revised test currently under development in UN-ECE Working Party on Pollution and Energy (GRPE).

It is anticipated to bring forward a new proposal before the end of 2002, introducing the new test cycle, as well as mandatory emission limits to be applied from 2006.

D. Non-road mobile machinery

Consultations with Member States on a possible extension of the scope have been carried out, and the Commission intends to come forward with a proposal before the end of the year.

The Commission intends to launch at the beginning of 2001 a new, integrated Clean Air

for Europe (CAFÉ) program leading to a comprehensive air quality strategy covering all the relevant emission sources by 2004.

9. Air Pollution Study Bolsters Claims Italy Lagging Behind Most EU Members

A study released by the Italian environmental group Legambiente showed high levels of air pollution in eight large Italian cities, highlighting statements by environmental authorities at a conference that Italy lags behind most of the European Union in terms of environmental reform.

The study's results, which include information gathered starting in June 1999, were released at a Sept. 18 conference hosted by Legambiente and the World Health Organization.

The study tracked levels of particulate matter 10 microns or less (PM_{10}) in the cities of Bologna, Florence, Genoa, Milan, Naples, Palermo, Rome, and Turin. Though there are no comparison figures, unofficial data from previous years showed that pollution levels were on the rise in the eight cities. The results also showed that pollution in these cities is generally higher than average compared to other similar-sized cities in the EU.

According to the study's results, the industrial city of Turin was the most polluted in 1999, with 53.8 parts of PM_{10} pollution per cubic meter, followed by Naples, with 52.1 parts per cubic meter. The cleanest city was Palermo, with 44.4 parts per cubic meter, the only city in the test registering fewer than 46 parts per cubic meter.

The study also showed that the pollution levels resulted in higher-than-average levels of bronchitis and other breathing-related illnesses, with premature death for about 4.7 percent of the population in the cities in question.

10. EU Communication Indicates Progress In Reducing CO_2 Emissions from Cars

The Community's strategy to reduce CO_2 emissions from passenger cars and improve fuel economy was endorsed by the Council in 1996. It aims at achieving an average CO_2 emission figure for new passenger cars of 120 g CO_2/km by 2005, and 2010 at the latest.

It is based on three main pillars:

1. Commitments of the automobile industry on fuel economy improvements, aiming at achieving an average CO_2 emission figure for new passenger cars of 140 g CO_2/km by 2008/2009.

2. Fuel-economy labelling of cars which aims at ensuring that information relating to the fuel economy and CO_2 emissions of new passenger cars offered for sale or lease in the Community is made available to consumers in order to enable consumers to make an informed choice.

3. The promotion of car fuel efficiency by fiscal measures. In this respect the Environment Council in October 1999 reiterated the need to study the possibility of establishing a reference framework for fiscal incentives.

These pillars are supplemented by research activities.

The Council invited the Commission to report about the effectiveness of the strategy regularly. In order to establish a detailed and fully transparent monitoring the Commission intends to submit reports on an annual basis, meeting at the same time related reporting

requests expressed by Council. The European Parliament should be informed as well.

This first report covers the progress made with regard to the commitments made by the automobile industry. Future reports will address as well the other parts of the strategy in more detail, including the requirements laid down in Decision 1753/2000/EC as soon as these parts of the strategy are implemented, or significant progress is made. The Commission believes that such a consolidated reporting will allow all interested parties to follow the implementation of the Community strategy in the most efficient way.

The commitments made by the automotive industries provide the major contribution to the Community's strategy to reduce CO_2 emissions from passenger cars and improve fuel economy.

After submission of the commitment of the European automobile industry (*European Automobile Manufacturers Association – ACEA)* in 1998, equivalent commitments were made in 1999 by the Japanese (*Japan Automobile Manufacturers Association - JAMA*) and Korean (*Korea Automobile Manufacturers Association - KAMA*) automobile industries.

All three commitments constitute equivalent efforts having the following main features:

1. The CO_2 emission objective: All commitments contain the same quantified CO_2 emission objective for the average of new passenger cars sold in the European Union, i.e. 140 g CO_2/km (to be achieved by 2009 by JAMA and KAMA and by 2008 by ACEA).

2. Means of achievement: ACEA, JAMA and KAMA commit themselves to achieving the CO_2 target mainly by technological developments and related market changes.

In addition "estimated target ranges" for the average new car CO_2 emissions are provided for 2003/2004. These target ranges, however, are indicative and do not represent an additional commitment by the associations. Nevertheless the Commission attaches special importance to these intermediate targets as a basis for verifying whether the commitments are effective.

The commitments of ACEA, JAMA and KAMA must be subject to a thorough, transparent and fair monitoring scheme. For this purpose they are complemented by the joint monitoring mechanism with the associations and the future Community monitoring system. Every year "Joint Reports", one with each of the associations, are drafted and agreed between the parties, and attached to the Commission's Communication to Council and European Parliament.

In order to guarantee transparency the Commission services and the three associations agreed on the format of the "Joint Report". The layout of these reports is therefore quite similar and so is the detail of the underlying data that has been provided by the respective association. The associations' data sources are considered as very reliable, and have been used because the official EU CO_2 monitoring system will not become operational until 2001/2. Once available this system will allow official emissions data to be used.

The main findings for the reporting period 1995 to 1999 are:

All associations reduced the average specific CO_2 emissions of their cars sold on the EU market. ACEA and JAMA show good progress, KAMA is lagging behind (see Table

1).

ACEA	**1995**	**1996**	**1997**	**1998**	**1999**	**Change 95-99 (%)***
	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)
gasoline	188	186	183	182	180	-4.3%
diesel	176	174	172	167	161	-8.5%
all fuels (1)	**185**	**183**	**180**	**178**	**174**	**-6.0%**
JAMA	**1995**	**1996**	**1997**	**1998**	**1999**	**Change 95-99 (%)***
	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)
gasoline	191	187	184	184	181	-5.2%
diesel	239	238	222	221	221	-7.5%
all fuels (1)	**196**	**193**	**188**	**189**	**187**	**-4.6%**
KAMA	**1995**	**1996**	**1997**	**1998**	**1999**	**Change 95-99 (%)***
	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)
gasoline	195	197	201	198	189	-3.0%
diesel	309	274	246	248	253	-18.1%
all fuels (1)	**197**	**199**	**203**	**202**	**194**	**-1.5%**
EU-15 (2)	**1995**	**1996**	**1997**	**1998**	**1999**	**Change 95-99 (%)***
	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)	CO2 (g/km)
gasoline	188.6	186.4	183.8	182.5	180.3	-4.4%
diesel	178.8	177.5	175.0	171.5	165.3	-7.5%
all fuels (1)	**186.4**	**184.4**	**181.8**	**179.6**	**175.9**	**-5.6%**

(1) gasoline and diesel only, other fuels are negligible.
(2) New passenger cars put on the EU market by manufacturers not covered by the Commitment account for about 100 000 vehicles annually with an average specific CO2 emission of about 220 to 240 g/km.Hence, they would not influence the EU average significantly.
(*) Percentages are rounded figures.

Table 1: Average specific CO_2 emissions of new passenger cars per fuel type, for each association and the European Union

Under the assumption that the associations continue with the average annual reduction rate in the same range as in the reporting period ACEA would meet the intermediate target rate, JAMA would be slightly above and KAMA would be significantly above. However, it can be expected that JAMA and KAMA will catch up in the coming years.

The average CO_2 emissions of new passenger cars decreased as well in all Member States.

In order to meet the final target of 140 g CO_2/km additional efforts are necessary and the annual reduction rate needs to be increased (on average the reduction rate must be 2 % per year throughout the entire monitoring period; currently ACEA achieves on average about 1,5 % per year, JAMA 1.15 % per year, and KAMA 0.4 % per year). However, it is predicted in the commitments that the associations would increase their reductions CO_2 rates with time. Furthermore ACEA points out in its report that the biggest advances on CO_2 emission will occur at the time of major product renewal, not at mid-cycle.

The reductions achieved so far are based on technological developments (mainly the introduction of High Speed Direct Injection Diesel (HDI) Engines, to less extent by the introduction of Gasoline Direct Injection (GDI) Engines, Continuously Variable Transmission, “Mini Cars” and Dual Fuelled Vehicles) as well as on other measures. Moreover, ACEA and JAMA introduced passenger cars emitting

less than 120 g CO_2/km.

All associations increased the diesel share of their fleets within the reporting period. The diesel share increase was predicted for the short-term, however it is expected that this will be reversed in the longer term with the introduction of Gasoline Direct Injection technology. All associations declared in their respective commitment that they will meet the final target by mainly technological developments and market changes linked to these developments.

With regard to the assumptions underlying the commitments the associations drew attention to matters as fuel quality and other regulatory measures.

The car industry attributes great importance to the availability of low sulphur fuel to meet dual targets of reduced CO_2 and NOx emissions. The associations made their commitments on the basis of the fuel quality requirements laid down in Directive 98/70/EEC, although they expect that better fuel qualities might be available in the market in the future. The Commission notes the importance that some parties attribute to lowering the current legislative maxima for the sulphur content of petrol and diesel in Community legislation. In order to consider the issue further the Commission has launched a consultative exercise to seek views from stakeholders. It is expected that this will be completed by the end of this year and before the pending amendment to Directive 98/70.

The car industry ACEA anticipates that the End-of-Life Vehicle (ELV) Directive will have adverse implications for the fuel efficiency of cars, as it may limit in its opinion the use of certain light materials and technologies, while burdening significantly the companies. The Commission does neither expect repercussions of the ELV Directive on the CO_2 commitment nor significant adverse repercussions on the industry's economic situation.

KAMA drew special attention to the ongoing restructuring process, associated budget cuts and the reduction of technical and scientific staff that has negative repercussions on KAMA's capabilities to develop the necessary new CO_2 efficient technologies and to introduce new models on the EU market.

NORTH AMERICA

11. Ford To Boost Fuel Economy of SUVs by 25 Percent; GM Annoyed

Ford Motor Co., attacking complaints about gas-guzzling sport utility vehicles has announced that it will raise the average fuel economy on its hot-selling SUVs in the United States by 25 percent by 2005.

Ford Chief Executive Officer Jac Nasser announced the program in a speech in Washington, where Congress is considering regulations to raise the fleet average fuel economy of light trucks to 27.5 miles per gallon, the mark required for car fleets, from 20.7 mpg.

Nasser said the world's No. 2 automaker is taking the action in response to customer demands, and because it expects it to lead to higher future sales. Ford may also extend the mileage gains to its pickup truck fleet.

"We fundamentally believe this is what customers want. This is market driven," Nasser told the National Press Club.

Nasser would not say how much the program is costing the automaker, but added it will not result in higher sticker prices for consumers.

Seventy percent of Ford's fuel economy gain, which will boost the SUV fleet's average miles per gallon to 23 from 18, will come from changes to its existing and future SUV lineup. It includes the recently acquired British high-end SUV manufacturer Land Rover, Volvo and its Mazda Motor Corp. affiliate.

Ford sold more than 850,000 SUVs in the United States last year - about 20 percent of its sales - and has the best-selling sport utility on the market, the Explorer. The company also sells the largest - and most gas-thirsty - SUV on the market, the Excursion, which gets about 10 mpg.

The better mileage will come from a variety of areas, including new generations of engines, more use of lightweight materials such as aluminum and composites, and improved aerodynamics.

The remaining 30 percent will result from future products, such as the Ford Escape small SUV due to be released late this summer, which will get 24-28 mpg on the highway. Ford also plans to release a hybrid gasoline-electric version of the Escape in 2003. **Ford will not rely on flexible fuel vehicles or diesel engines to reach the targets.**

As a result of the better fuel economy, the average owner of a Ford SUV will use 1,700 fewer gallons of gasoline through the life of the vehicle, saving more than $2,400, Ford said.

General Motors Corp., Ford's largest competitor, fired back with a statement that it already leads Ford in fuel economy in the full-size and mid-size SUV segments - something Nasser did not dispute.

"If they do what they say they are going to do, a large part of that is going to be playing catch-up to us," said GM spokesman Bill Noack.

Sport utility vehicles have been among the fastest-selling vehicles on U.S. roads in recent years, even though they get lower gas mileage than minivans and cars.

Ford Chairman William Clay Ford Jr., an avid environmentalist and great grandson of founder Henry Ford, has made improving the company's environmental record a top priority, although Ford conceded at its annual meeting in May that SUVs fall short of its environmental goals.

Nasser's announcement comes just as Toyota Motor Corp. begins selling the Prius, the first mass-produced sedan on the road that will run on a gasoline-electric engine and achieve 52 miles per gallon in city traffic.

Honda Motor Co. Ltd. launched last fall a two-seater car, called the Insight, which it says gets more than 70 miles per gallon from its gasoline-electric engine. Neither the Insight or the Prius need to be plugged in - they recharge their batteries while the car is braked.

Shortly after the Ford announcement, General Motors Corp.'s vice chairman said he was annoyed by Ford Motor Co.'s "green thumb" reputation, saying GM has done more for the environment than its U.S. rival.

Harry Pearce criticized as misleading Ford's announcement that it would improve fuel economy in its sport utility vehicles (SUVs) by 25 percent within five years.

Pearce said America would save 38 million gallons of fuel a year if every owner of a Ford light truck switched to a comparable GM truck.

"What annoys me is the perception that seems to come from that press conference that somehow or other Ford has now established itself as an environmental leader when no one seems to be focusing on who the leader is today based upon the products on the road," he told reporters at the No. 1 automaker's truck product center near Detroit.

"GM leads Ford today in truck fuel economy, both as an average and model by model basis including SUVs, which were the substance of Ford's announcement," Pearce added. "General Motors will still be the leader in five years or for that matter 15 years or 20 years, end of story."

He said GM leads Ford on SUV fuel economy by 6 percent, and by 4 percent for all light trucks, which includes SUVs, pickup trucks and minivans. Yet, he complained, Ford has been lauded by many for its environmental leadership.

"That really annoys me," Pearce said. "Do you get that credibility by making promises about the future or do you get it by delivering products today."

Ford officials congratulated GM for joining them in promising to offer consumers more fuel efficient trucks.

"Last week, we told everybody where we are and where we intend to go and we were applauded for it," Ford Vice President Jason Vines said. "We didn't use any gimmicks or any tricks. We did it for one reason, our customers want it.

"Obviously, GM is coming to the same conclusion and that's great for customers," he added.

Pearce would not say by how much GM would improve its truck or SUV fuel efficiency other than to say it would maintain its lead. He also called the federal fuel efficiency standards a "flawed regulatory policy" and said customer desires should dictate at what pace the automakers should improve.

In another move to improve its truck fuel economy, GM said it will introduce a full-size pickup with hybrid electric propulsion beginning in 2004. It will offer a 15-percent boost in fuel efficiency without compromising performance.

Pearce declined to say at what volume or price the vehicle will sell.

DaimlerChrysler AG's American unit last year showed a hybrid-powered Dodge Durango SUV, with 20-percent improved fuel efficiency, that it said could quickly be moved into production if Congress approved incentives for hybrid vehicles.

Pearce said GM will rely on such new technologies, as well as using lighter-weight materials and more aerodynamic designs to improve its vehicles' fuel efficiency.

He also said GM's Allison transmission division will deliver in October to a U.S. city he would not name the first hybrid-powered transit bus it developed. The vehicle offers 50 percent improved fuel economy, as well as significantly reduced emissions.

12. EPA Issues 2004 Rule to Cut Heavy Truck, Bus Pollution

The U.S. Environmental Protection Agency has issued its long awaited final rule to reduce harmful diesel emissions from heavy-duty trucks and buses. The rule is the first part of the agency's two-part strategy to improve vehicle engines and have cleaner diesel fuel in the U.S. market. The second part was proposed in May and is expected to be

finalized by year's end.

When both rules take effect, trucks and buses will be almost as clean as alternatively fueled vehicles, such as those that run on natural gas.

Heavy duty trucks and buses produce exhaust that is made up of soot and smog-forming pollution, which together account for 15,000 U.S. deaths, 1 million respiratory problems and 400,000 asthma attacks, according to EPA.

The following are some brief highlights of this final rule.

A. Heavy-Duty Diesel Engines

- EPA is reaffirming a model year 2004 combined standard for smog-causing nitrogen oxides (NOx) and hydrocarbons (HC) of 2.4 grams per brake horsepower-hour (g/bhp-hr)

- The rule adds new supplemental test procedures and compliance requirements to ensure that emission standards are met in actual use across a wide range of operating conditions. These requirements begin in the 2007 model year.

- The rule requires on-board diagnostic (OBD) systems for engines used in vehicles with a gross vehicle weight rating between 8,500 and 14,000 pounds to be phased-in, beginning in 2005. These systems will identify the failure of components of the emissions control system.

B. Heavy-Duty Gasoline Engines

- Vehicles less than 14,000 pounds gross vehicle weight rating are subject to emission standards and testing similar to the current program for light-duty vehicles and light-duty trucks.

- The rule adds new, more stringent emission standards for vehicles with a gross vehicle weight rating below 14,000 pounds beginning in model year 2005.

- New gasoline heavy-duty engines used in vehicles with a gross vehicle weight rating above 14,000 pounds must meet a combined HC and NOx standard of 1.0 gram per brake-horsepower-hour beginning in model year 2005.

- OBD systems for engines used in vehicles with a gross vehicle weight rating between 8,500 and 14,000 pounds will be phased-in.

- The rule incorporates flexibility and incentive mechanisms that will encourage manufactures of gasoline engines to meet new standards as early as 2003 or 2004.

13. Senate Environment Chief Offers MTBE Phase out Plan

Sen. Bob Smith, chairman of the Senate Environment and Public Works Committee, has introduced a bill to ban the controversial gasoline additive MTBE and offered a separate amendment to encourage "clean alternative fuels."

Lawmakers have been struggling this year to come up with a plan for eliminating MTBE, which has contaminated groundwater supplies across the country. The problem has been complicated by conflicting regional interests. Midwest farmers, in particular, have been wary of any solutions that might reduce demand for ethanol, an alcohol fuel made from corn. Meanwhile, California and New England states have been concerned that simply eliminating MTBE would require them to use ethanol in cleaner-burning

"reformulated gasoline" (RFG).

That could boost fuel costs because of ethanol's high volatility in the hot summer months, those states argue.

Smith's bill, which is scheduled for committee action on Sept. 7, would require the Environmental Protection Agency to ban MTBE within four years and provide $200 million for MTBE cleanup activities.

The legislation would also allow individual states to waive the current federal requirement that RFG contain at least two percent oxygen by weight.

Both MTBE - which is short for methyl tertiary butyl ether - and ethanol are used to add oxygen to RFG.

MTBE is used in about 87 percent of RFG, which is required in areas with the worst air pollution and accounts for about one-third of the gasoline sold in the United States.

Ethanol supplies about 12 percent of the RFG market.

The Clinton administration has proposed replacing the two-percent oxygen mandate with a new requirement that a certain percentage of the total gasoline market come from "renewable sources."

Smith rejected that approach as too expensive and a de facto mandate for ethanol.

But in a major development, two important regional groups representing 32 states - the Northeast States for Coordinated Air Use Management (NESCAUM) and the Governors' Ethanol Coalition - last week called on Congress to create a "clean alternative fuels program" that would allow for steady expansion of domestically-produced renewable fuels.

Such a program could include not just ethanol, but also premium gasoline blends, electric and natural gas cars and new fuel cell technology.

The separate amendment Smith offered to his bill would set aside 0.6 percent of the total U.S. fuels market for clean alternative fuels beginning in 2002. That would increase gradually to 1.5 percent in 2011.

Once Congress returns from its August recess, Smith could only have four or five weeks to get an MTBE bill through the Senate and the House.

Lawmakers are expected to adjourn early this year because of the November presidential and congressional elections.

14. Rising Ammonia Emissions Attributed To Cars; Reformulated Gasoline and Catalytic Converters Also May Contribute

Researchers presented evidence at the 220th national meeting of the American Chemical Society that cars may be the main source of haze-inducing ammonia, rather than livestock, as previously thought. In a study of 4,500 vehicles conducted on a southern California freeway ramp, researchers found unexpectedly high levels of ammonia in the exhaust of gasoline-powered cars. The levels were so high they estimate that cars are adding twice as much ammonia to the air of California's southern coastal basin as livestock do.

Ammonia plays a role in the formation of very small airborne particles, sometimes called "particulate matter." The U.S. Environmental Protection Agency recently targeted such particles for regulation under Clean Air Act

standards on the grounds that they endanger human health. Opposition to EPA's proposed regulation led to a lawsuit that the U.S. Supreme Court will hear this term.

Until now, scientists believed that decomposition of livestock waste was the main source of atmospheric ammonia, according to Marc Baum, senior scientist at the Oak Crest Institute of Science and principal investigator for the study.

The evidence collected by Baum and his colleagues also suggests that a small share of the vehicles in the study produced most of the pollution. They found that 70 percent of the vehicles had detectable ammonia emissions, but just 10 percent generated 66 percent of the total emissions, according to Baum.

Using a measuring technique called remote sensing, the research team collected information on ammonia emissions on a car-by-car basis. This information, along with snapshots of the cars' license plates, enabled them to pinpoint the make and model of vehicles responsible for the elevated ammonia levels, Baum said.

Aside from cars and dairy farms, major sources of ammonia emissions include fertilizers and sewage treatment plants.

Although Baum's findings are based on cars in southern California, they "raise questions as to what ammonia emissions from on-road vehicles are nationwide," he said.

Some theorize that reformulated gasoline, introduced in the mid-1990s to lower sulfur and other emissions, has contributed to the increase in ammonia levels, Baum said. A recent study in the Aug. 15 issue of the journal Environmental Science & Technology, also published by ACS, reported that catalytic converters may play a role in rising ammonia emissions as well.[2] The objective of that study was to measure ammonia and other exhaust emissions from a large sample of on-road vehicles using California phase 2 reformulated gasoline with low sulfur content (~10 ppm by weight). Vehicle emissions of ammonia, NO_x, CO, and CO_2 were measured in the center bore of a San Francisco Bay area highway tunnel on eight 2-h afternoon sampling periods during summer 1999. Ammonia concentrations were divided by total carbon (mainly CO_2) concentrations to compute an emission factor of 475 ± 29 mg L^{-1} (95% C.I.). The molar ratio of nitrogen emitted in the tunnel in the form of ammonia to that emitted in the form of NO_x was 0.27 ± 0.01. Emissions of NO_x and CO have been measured at this tunnel sampling location since 1994. From 1994 to 1999, emissions decreased by 41 ± 4% for NO_x and 54 ± 6% for CO. These reductions include the impacts of turnover in the vehicle fleet and the use of reformulated gasoline. Between 1997 and 1999, when fuel properties did not change significantly, emissions of NO_x and CO decreased by 26 ± 2% and 31 ± 3%, respectively. While use of three-way catalytic converters has contributed to decreases in NO_x and CO emissions, their use, in combination with fuel-rich engine operation, is the likely cause of the ammonia emissions from motor vehicles observed during this study, according to the authors.

15. Record Heat, Smog Pose Health

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[2]"On-Road Measurement of Ammonia and Other Motor Vehicle Exhaust Emissions", Andrew J. Kean and Robert A. Harley, *Department of Mechanical Engineering and Department of Civil and Environmental Engineering, University of California, Berkeley,* David Littlejohn, *Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory,* Gary R. Kendall, *Technical Services Division, Bay Area Air Quality Management District.*

Risk in US South

In early August, the Southern part of the US suffered through a period of record heat and dirty air, as temperatures passed the century mark and officials warned people to stay indoors to avoid unhealthy smog.

Tuscaloosa, Ala., set a record with a high temperature of 105 degrees. It was 104 degrees in Macon and Columbus, Ga., 103 degrees in Columbia, S.C., and 101 degrees in Atlanta, the city's hottest day in five years.

The heat was blamed for the death from hyperthermia of an Atlanta construction worker. Doctors said they were seeing an increase in patients, including children with asthma, who were having difficulty breathing.

"It's probably the smog," said Dr. Linnette Sells of Physicians Immediate Med in the Atlanta suburb of Norcross.

Officials said Atlanta was suffering from the worst smog in five years, with "unhealthy" or "very unhealthy" conditions all week. The pollution included high levels of ground level ozone.

"If you don't actually have to go outside, don't," was the advice given by Ron Methier, chief of Air Protection Branch of the Georgia Environmental Protection Division.

The continued hot, dry weather prompted officials to cancel the 2000 Alabama Cotton Expo.

Roy Roberson, a spokesman for the Alabama Cooperative Extension System in Auburn, said the state's cotton crop is expected to be "dismal" this year because of the drought.

"We had a real good cotton crop up until the first of July and then the dry weather kept it from continuing to fruit," said farmer Richard Edgar of Deatsville. Edgar said he would lose money this year on his 440 acres of cotton.

The Tennessee Valley Authority set a record for peak electricity use this week because of the heat, with consumption reaching more than 29, 000 megawatts for the first time in history.

16. US Farmers Oppose EPA Proposal For Low Sulfur Diesel

The American Farm Bureau Federation has said a proposal by the Environmental Protection Agency to cut sulphur levels in diesel fuel could hurt farmers and the rural economy. The Farm Bureau, the nation's largest organisation representing about 80 percent of American farmers, said the EPA proposal could, "excessively spike the price for diesel fuel." The EPA wants to reduce sulphur levels to 15 parts per million from a current 500 parts per million allowed in diesel fuel.

"We are concerned that an overly stringent diesel fuel sulphur proposal could unnecessarily harm U.S. agriculture and rural America, particularly during a time of continuing economic hardship that threatens the survival of many farmers, ranchers and the agricultural sector as a whole," the Farm Bureau said in statement.

17. EPA Report Shows Continued Drop in Major U.S. Air Pollutants

A new Environmental Protection Agency report shows that U.S. air quality continues to improve as six major pollutants have fallen dramatically over the last decade.

Since the Clean Air Act was signed into law in 1970, overall national air quality levels have improved as the amount of atmospheric

smog, carbon monoxide, sulphur dioxide, lead, nitrogen dioxide and soot have been reduced.

Measurements for the most recent 10-year period shows the following nationwide improvement in air quality.

- Carbon monoxide concentrations down 36 percent.
- Lead concentrations down 60 percent
- Nitrogen dioxide concentrations down 10 percent.
- Smog concentrations down 4 percent.
- Soot concentrations down 18 percent.
- Sulphur dioxide concentrations down 36 percent.

Even with the improvement, 62 million American still live in areas that have unhealthy air.

The agency said it was taking more steps to improve air quality, such as controlling wind-blown smog, requiring cleaner engines in cars and trucks and reducing the sulphur in gasoline and diesel fuel.

The EPA also said air pollution remained a problem in many rural areas, as well as in some national parks which have high smog levels from pollution emitted at industrial sites that were sometimes hundreds of miles away.

"Americans have made significant progress in improving our air quality and protecting public health, but real challenges still remain," said EPA Administrator Carol Browner.

18. GM, Exxon Advance Fuel-cell Technology

In 10 years, large numbers of vehicles using gasoline-powered fuel cells could get twice the mileage and emit fewer pollutants than today's cars and trucks, General Motors Corp. officials have announced.

GM and Exxon Mobil Corp. announced they have improved technology to power fuel cells using gasoline, in a development that may result in a cleaner and more efficient alternative to internal combustion engines in automobiles.

The No. 1 automaker and No. 1 U.S. oil company have created a fuel processor that uses gasoline to create hydrogen to run a fuel cell. Consumers would be able to fuel the vehicles the same way they do with their current cars and trucks at gasoline stations.

"Fuel cells based on gasoline make use of an existing infrastructure, and mean that cleaner, more efficient vehicles can be in consumers' hands within the next 10 years," Larry Burns, vice president of GM research and development, said at a University of Michigan automotive conference.

Widespread use of such alternative fuels as propane, methanol and ethanol has lagged because of the lack of infrastructure - filling stations to provide the fuels.

Fuel cells produce energy through an electrochemical reaction instead of combustion, often with hydrogen as their initial fuel source. They are regarded as more environmentally friendly because their only emissions are water and heat.

The fuel cell with a gasoline processor is twice as efficient as current engines, but emits half the carbon dioxide and significantly less nitrogen oxide, said William Innes, president of Exxon Mobil Research and Engineering.

Burns said city buses and other commercial vehicles may be the first to use the new technology, probably within a few years. But

by 2010, perhaps hundreds of thousands of vehicles could be powered by fuel cells, including passenger cars and trucks.

The gasoline-fuel cell vehicle could serve as a temporary measure until liquid hydrogen as a fuel becomes economically and technically feasible and widely available, the companies said.

A challenge for the industry is developing the technology to store hydrogen safely and economically, rather than having it converted from gasoline on board vehicles.

Numerous automakers are experimenting with clean-burning fuel cell technology in the race to develop engines that are more efficient and less harmful to the environment than traditional internal combustion engines that run on gasoline.

"It's a race between companies. It's also a race between technology paths," Burns said. "There were people a few years ago that said what we are talking about today was impossible."

Because fuel cells have no moving parts, they have the potential to be much more durable and much more quiet than internal combustion engines, Burns said.

GM plans to have a demonstration vehicle using the technology within the next 18 months.

19. Canada's Greenhouse Gas Emissions Continue to Increase But More Slowly

Canada has provided the United Nations with Canada's national inventory data of emissions of greenhouse gases, in accordance with the United Nations Framework Convention on Climate Change. It shows that Canada's greenhouse gas emissions in 1998 were 13% above 1990 levels. However, the growth in emissions is slowing down. From 1997 to 1998 total greenhouse gas emissions grew by only 1%. In the mid 1990s, emissions were growing at about 3% per year, while Canada's economy grew at an average rate of about 2% per year. In 1998, the year that emissions growth slowed, GDP grew 4.4%.

The data also points to areas where action will be required to start reducing Canada's emissions. For example:

> Emissions in the industrial and manufacturing sectors are slightly below 1990 levels. Energy efficiency improvements in the industrial and manufacturing sectors are keeping pace with production increases.
>
> Emissions in the electricity sector are 28% above 1990 levels. Emissions in the electricity sector continued to grow as coal is being used to pick up much of the increased demand for electricity.
>
> Emissions in the transportation sector are 20% above 1990 levels. The average fuel efficiency of the new vehicle fleet has not improved since 1990. Road freight and the number of sport utility vehicles, vans and light trucks continue to increase.

The Kyoto Protocol commits Canada to reduce greenhouse gas emissions to 6% below 1990 levels by the period between 2008-2012.

According to the report, countries that have specific reduction targets under the Kyoto Protocol are making varying degrees of progress in stabilizing and reducing greenhouse gas emissions.

Germany and the United Kingdom have reduced emissions 15.5% and 12.5%, respectively, from 1990 levels.

France, Sweden and Denmark have curbed their emission growth and started reducing their emissions.

On the other hand, emissions in the Netherlands and the USA have increased 8% and 11.5%, respectively. In the United States, the emissions growth trend has been slowing for the last three years while the economic growth rate is also rising.

Emissions in Australia are increasing at a greater rate than Canada's, where emissions have increased 16.9% since 1990.

Over the past five years, Canada has committed more than $850 million to helping understand and mitigate climate change. In its 2000 budget, the Government of Canada allocated more than $600 million for initiatives related to climate change.

After two years of work in a comprehensive process involving more than 450 experts from the federal, provincial and territorial governments, industry, academia and interest groups, federal, provincial and territorial energy and environment ministers will be meeting in Quebec City on October 16-17 to consider Canada's first national business plan on climate change. At their meeting in March, Ministers agreed that this business plan must contain concrete actions to start reducing Canada's greenhouse gas emissions.

Actions to reduce greenhouse gas emissions will also bring improvements to air quality. For example, switching coal fired electricity generators to run with natural gas reduces CO_2 by 50% and it also deals with major smog-causing pollutants such as NOx (as much as 90% reduction), SO_2 and particulate matter (elimination). It also eliminates mercury pollution. With a growing understanding of the links between environment and health, these actions will also improve the health of Canadians.

20. Government of Canada Announces Next Steps in Program to Reduce Toxic Particulate Matter

Environment Minister David Anderson and Health Minister Allan Rock have published in *Canada Gazette*, Part 1, a formal notice that they intend to declare toxic under the new *Canadian Environmental Protection Act* (CEPA) the principal substances that form airborne fine particulate matter ($PM \leq 10$). Fine particulate matter is formed when sulphur dioxide, nitrogen oxides, ammonia and volatile organic compounds combine in the atmosphere.

The Notice of Intent on precursors to $PM \leq 10$ follows an earlier declaration in the Canada Gazette proposing that $PM \leq 10$ be added to the List of Toxic Substances under CEPA.

"Fine particulate matter in our air from industrial and transportation sources is responsible for 5000 premature deaths per year, increased hospital visits and doctor visits," said Environment Minister Anderson. "To effectively reduce the levels of particulate matter in the air we breathe, we must reduce the emissions of the chemical substances that pollute our air."

"Health Canada's number one priority is to work with Canadians to maintain and improve their health," said Minister Rock. "The targeting of the principal gases involved in the formation of particulate matter is a significant step towards providing Canadians with

cleaner air, less pollution, and a better quality of life."

PM≤10 is produced through a variety of human activities and natural sources including the burning of fossil fuels, forest fires and activities such as mining, construction and demolition.

Because of their small size, PM≤10 and in particular the smaller size fraction PM≤ 2.5, can penetrate deep into human lungs, where they become trapped. Precursors have been linked with chronic respiratory disease and a range of other health ailments, including cardiovascular disease. Scientists now believe that there is no safe level of exposure to PM≤10, and even relatively low levels can lead to premature deaths from cardiovascular causes. Children, the elderly and people with respiratory diseases are particularly vulnerable. Outdoor PM≤10 concentrations also cause increased absence from work and school.

Late this fall, after reviewing the public submissions received during the 60-day comment period on the Notice of Intent, the ministers will publish their proposed order adding the precursors to the List of Toxic Substances. Under the new CEPA, once a substance is added to List of Toxic Substances, the government must decide on the appropriate control method to protect human health and the environment.

This action on particulate matter is among a number of immediate and long-term measures on clean air initiated by the Government of Canada since May. Those include:

$1 million to extend daily air quality forecasting across Canada within the next year;

$1.2 million to upgrade air pollution monitoring through the National Air Pollution Surveillance Network;

$2.1 million for more acid rain research and monitoring;

Corporate Smog Action Plan for federal departments in Ontario to reduce air pollution;

consultation on a program for vehicles and fuels to be in effect by the 2004 model year, particularly for light duty trucks and SUV's, reducing sulphur in diesel by 2006;

designing management options for industrial sectors to reduce emissions of particulate matter;

announcing that the primary focus of funding under the new infrastructure program will be for green infrastructure projects which help improve water and air quality;

reaching an agreement with all provinces and territories on a Canada Wide Standard on Ozone and particulate matter that will speed up the reduction of smog in our cities to 2010 or earlier; and

moving the negotiations on an Ozone Annex with the United States towards signing an agreement this year.

21. Washington DC Considering a Shift From Diesel to Alternative Fuel Buses

A new study just released by INFORM, a nonprofit environmental research group, saw long-term promise in hybrid diesel-electric buses but warned against too-heavy reliance

on them now because the technology is still new and emissions performance over time is unclear. Compressed natural gas buses have been in service for a decade, and orders for them are increasing. The INFORM study called them "clearly the best choice" for transit agencies deciding which buses to purchase now and in the near future.

Prompted by Metro board members Jim Graham of the District and Chris Zimmerman of Arlington, the board has asked its staff to review both natural gas and hybrid diesel-electric buses as possible alternatives to diesel. Both cost more than standard diesel; natural gas buses are less expensive per bus than the hybrids but also would require new refueling stations. The extra costs are a concern for a transit system with many needs, but that shouldn't be the deciding factor in this case. Sickness caused by air pollution has a cost, too. Federal funds, which Del. Eleanor Holmes Norton has offered to help pursue, might help pay for alternative buses and infrastructure. Other cities have negotiated arrangements with gas companies to cut the costs of new refueling stations. Metro should pursue all these options.

The Metro board will decide in September about the next 100 buses to be purchased for its fleet. Those were slated to be diesel vehicles, but the board can change the contract, and it should. By turning to natural gas, Metro can make a real contribution to cleaner air and public health.

22. California Retains ZEV Mandate

At their September Board meeting, California regulators voted to keep a rule requiring that 10 percent of cars offered for sale in the state starting in 2003 emit little or no pollution, a goal that the industry has said is unreachable. The unanimous decision by the California Air Resources Board, which regulates air pollution in the state, could increase the number of electric cars on the road by a huge amount, not only in California but also in New York, Maine, Massachusetts and Vermont, which have opted to follow California pollution rules.

Automobile companies have argued strenuously that they cannot sell that many electric cars because such vehicles are too costly and can travel only about 100 miles before the batteries must be recharged, a process that takes several hours.

But the board, whose 11 members are appointed by the governor, said the rule was needed to cut pollution in the long term. "Our future depends on the continuing march to zero-emission vehicles," Alan C. Lloyd, the board chairman, said after a day and a half of public hearings. "We need to stay the course." Progress toward nonpolluting cars, Mr. Lloyd said, would "dramatically decrease or stop completely without a clear regulatory signal."

Still, the board instructed its staff to consider modifications to the plan to deal with the high costs of electric cars, which the staff estimated to be as much as $20,000 more than equivalent gasoline powered cars. Automobile executives held out hope that the rule would still be changed by January, when the board is to consider the proposed modifications.

After the decision, auto manufacturers initially spurned offers by the ARB staff to meet with individual companies to discuss potential modifications. They said that they would only agree to meet as a group.

In the previous two reviews in 1996 and 1998, the board removed the deadlines for 1998 and 2001, saying they were impractical. It also

relaxed the rule for 2003. For the six largest manufacturers, only 4 percent of the cars offered for sale in 2003 have to have truly no emissions, a standard that can only be met right now by battery-powered electric cars. The rest of the 10 percent goal can be met by near-zero-emission vehicles, like extremely clean burning gasoline engines, natural gas engines or combined gasoline-electric hybrid vehicles.

23. South Coast Decides Against Earlier Introduction Of Low Sulfur Diesel Fuel

The South Coast Air Quality Management District (AQMD) voted unanimously against a proposed rule to adopt a cleaner diesel fuel by June 2004 rather than 2006. They agreed to either begin using the cleaner diesel in 2005, or when the statewide California Air Resources Board (CARB) does.

The AQMD had advocated an earlier adoption of the cleaner fuel in the Los Angeles area to help rid the area of toxic diesel emissions. A recent regional study identified diesel particulates as a top cause of cancer.

But oil industry officials said necessary upgrades could cost billions, although the AQMD says required refinery upgrades would cost refiners one to two cents per gallon.

In addition, other state agencies argue the move could raise already record diesel prices of more than $2 a gallon in the state. They say some regional refiners would decide against making the expensive upgrades, threatening already slim local diesel supplies.

California already uses the world's cleanest diesel, called CARB after the California Air Resources Board. The new cleaner diesel would limit sulphur content to 15 parts per million (ppm), down from a current 500 ppm in CARB diesel.

The AQMD argued that the four-year lead time, rather than the six-year time line, would allow for the refinery modifications. Refiners that can not meet the deadline would have to pay a fine.

24. Walsh Receives Award

Michael P. Walsh has been selected to be the first recipient of the US Environmental Protection Agency lifetime achievement award for air pollution control. The award in honor of Thomas W. Zosel was given for "outstanding achievement, demonstrated leadership, and a lasting commitment to promoting clean air".

25. Study Says US Becoming More Energy Efficient, Cleaner

A new study concludes that the U.S. has experienced a sizable increase in energy efficiency, allowing lower fuel bills for consumers and less carbon emission pollution as a measure of the economy.

The report by the American Council for an Energy-Efficient Economy ranked all 50 states and the District of Columbia for the amount of energy and emissions intensity as a unit of the nation's Gross Domestic Product. New York, Hawaii and California were the top three performers in the examination between the years 1970 and 1999, while Alaska and North Dakota brought up the rear, finishing at the bottom of the rankings.

"The top states have done more to reduce energy bills and cut pollutant emissions including emissions causing global warming than low-ranking states," said Howard Geller, executive director of ACEEE.

"The top states cut their energy use per capita about 10-20 percent during 1970-1997, while the worst states saw their energy use per capita rise 30-90 percent during this period."

The conclusions from the study recommend that states adopt "substantial" public benefits and renewable fuels standards to support energy efficiency programs. As the states decide to deregulate their electricity markets, they should implement incentives to get people to use renewables, like wind and solar, the report said.

"While differences in energy prices have the strongest correlation to overall score, the top states have done more to promote energy efficiency than have the low-ranking states," said Toru Kubo, the report's co-author.

Congress has debated the need for renewable mandates, which were included in the Clinton administration's plan to restructure the power sector. The White House wants utilities to purchase 7.5 percent of their base fuels from non-hydro renewables by the year 2010.

Currently around 3 percent is purchased from such sources.

26. Diesel Risk Reduction Plan Adopted by ARB

A comprehensive plan to reduce particulate matter (PM) emissions from diesel equipment was approved in late September by the California Environmental Protection Agency's Air Resources Board (ARB). The Plan (Diesel RRP) proposes a three-pronged approach that would require use of low-sulfur diesel fuel; retrofitting existing engines with PM filters; and nearly a 90 percent reduction of PM emissions from all new diesel engines and vehicles.

While the plan is non-regulatory, its approval means ARB staff, over the next several years, will develop and bring to the Board for action up to 14 regulatory items related to diesel fuel and diesel engines. These would include four measures reducing emissions from on-road equipment, four reducing emissions from off-road equipment, five reducing emissions from stationary and portable engines. There will also be a regulation requiring Phase 2 (low-sulfur) diesel fuel.

The state's has more than 1.2 million diesel-fueled vehicles and engines including more than 1 million on-road and off-road vehicles, about 15,000 stationary engines and about 50,000 portable engines.

To aid in implementation of the Plan, ARB has formed a committee of more than 40 international experts to assess the best technology for reducing diesel PM.

The state's Air Resource's Board voted 10-0 in favor of the 14-point proposal, which came from two years of planning after the board in 1998 determined diesel particulates were toxic.

California is the only state with power to adopt emissions control stricter than federal standards because the agency existed before the U.S. EPA and because the state has the nation's toughest smog problems.

But diesel producers, engine makers and trucker's groups warned that too much regulation too soon could put them out of business.

27. Stuart Energy IPO to Fund Hydrogen Fuel - Cell Drive

Stuart Energy Systems, which debuted on the Toronto Stock Exchange, plans to price the oil industry out of the fuel - cell game with its

system to produce inexpensive hydrogen from ordinary water.

The verdict is still out on what fuel will be used to make hydrogen for fuel cells - oil, natural gas or electricity - and Stuart believes its hydrogen fuel appliance, which generates hydrogen by electrolysis, using electricity bought at off-peak hours, is firmly in the running.

Stuart, which has been making hydrogen supply and storage systems for the past 52 years, said the C$150 million raised in its initial public offering will allow it to advance its technology for a hydrogen source for fuel - cell vehicles.

The company sold 5.8 million shares at C$26 each to give it 23.2 million shares outstanding on a fully diluted basis, and a market capitalization of C$603 million.

In the first day of trading the stock rose as high as C$29 in a lackluster market for technology and fuel-cell firms, and closed at C$26.45 on active volume of 1.9 million shares.

Electricity generated by a wind turbine can be made and moved for about 6 cents a kilowatt hour. This electricity is then used to make hydrogen through Stuart's device, producing a fuel source that is as cheap as gasoline.

Furthermore, Stuart's appliance acts as an arbitrageur of electricity, because it can create hydrogen in the evening hours when electricity usage is not at a peak.

The thought of vehicles running on hydrogen fuel cells has tantalized the investment community because of high oil prices, and a growing push by environmental agencies to reduce the use of carbon based fuels.

In August, Cheung Kong Infrastructure (CKI), an arm of Li Ka-shing's sprawling Cheung Kong Group , raised its stake in Stuart to 18 percent, bringing its total investment in the company to C$16 million.

Stuart and CKI formed a joint venture company that will see the Hong Kong billionaire roll-out a hydrogen supply infrastructure in Australia and Asia based on Stuart's technology.

The company's products are also being tested and evaluated until 2002 by Ford Motor Co.

28. Industry Attempts To Block EPA Diesel Rule

The U.S. Environmental Protection Agency and the oil industry engaged in a battle over a proposed amendment to a spending bill before Congress which the agency says would gut plans to clean-up diesel pollution from heavy trucks.

Clean air groups, along with EPA Administrator Carol Browner, said they were working to block attempts by the oil industry to have lawmakers legislate changes to the pending final rule on cutting diesel emissions. Browner said the White House has consistently held out a veto threat to any behind-the-scenes deals to rewrite environmental rules, so-called anti-environmental riders.

In May, EPA proposed a 97-percent cut in the amount of sulphur in diesel fuel. EPA's plan mandated the cleaner diesel fuel and engines starting in mid-2006.

EPA has stated that the proposed diesel rule would be finalized during the current administration, which ends in January 2001.
Clean air groups said officials with the

American Petroleum Institute, the oil industry trade group, were working to get lawmakers to refrain from finalizing the rule.

Refiners and heavy-truck manufacturers have complained that the rules were too costly and timeframes too stringent.

API said in a statement that they support significant reductions in on-highway diesel fuel by 2007 that would get virtually the same environmental benefits as the EPA rule.

The action on diesel mirrored a similar Clinton administration move to clean emissions from passenger cars, sport utility vehicles and minivans, which aimed at making changes in both fuel and engines in order to better take advantage of emerging technologies.

Truck manufacturers would begin making changes to their vehicles in 2007. By 2010, all new heavy-duty trucks and passenger buses would have to meet the new clean-air standards under the EPA proposal.

EPA has said diesel fuel costs would rise around 3 to 4 cents per gallon as a result of refiners meeting the new rule, while the average $150,000 heavy truck would see around a $2,000 sticker price increase.

29. Honda Insight Tops EPA Fuel Economy List for 2001

For the second year in a row, hybrid vehicles from Japanese automakers are the most fuel efficient cars or trucks on American roads, according to the just released 2001 fuel economy rankings from the U.S. Environmental Protection Agency.

The two-seat Insight from Honda Motor Co., which uses a hybrid gasoline-electric engine, is the winner, getting 68 miles per gallon on the highway and 61 mpg in city driving.

Close behind is Toyota Motor Corp.'s Prius hybrid sedan that gets 52 mpg on the highway and 45 in the city.

Both cars use electric motors powered by advanced batteries and gasoline engines to vastly improve fuel economy over traditional gasoline or diesel engines. The Insight, which went on sale last year, was the first hybrid-electric vehicle offered for retail sale in the United States.

"Choosing the most fuel-efficient vehicle in a class can save the owner at least $1,500 in fuel costs, avoids tons of pollution that causes global warming and help reduce dependence on imported oil," EPA Administrator Carol Browner said in a statement.

Automakers, responding to consumer and political pressure for cleaner, more fuel efficient vehicles - as well as higher gasoline prices - have stepped up efforts to improve efficiency this year. In July, Ford Motor Co. said it would raise the average fuel economy on its sport utility fleet in the United States by 25 percent by 2005.

But imports dominated many of the other categories compiled by the EPA for the 2001 model year, which starts this fall. The most efficient mid-size car was a tie between the Honda Accord and Mazda Motor Corp..

The two-door Vitara small sport utility from Suzuki Motor Corp. is the most fuel efficient four-wheel drive SUV on the road.

Among domestic winners, the Ford's Focus won for mid-size station wagons; General Motors Corp.'s Saturn SW won for small station wagon; and GM's trio of Oldsmobile, Pontiac and Chevrolet minivans won for that category.

GM's small pickup trucks, the Chevrolet S10

and GMC Sonoma, won for the pickup truck segment. Also in that group was the Hombre pickup, an Isuzu Motor Corp. vehicle made at the same plant as the GM trucks.

Who had the worst fuel record? The Ferrari 550 Maranello, which ranged from 8 mpg in the city to 13 mpg on the highway.

30. US EPA Advisory Board Agrees That Diesel "Soot" Is A Carcinogen

A U.S. Environmental Protection Agency science advisory board has agreed with the agency's characterization that diesel fuel exhaust is a "likely human carcinogen".

The decision by the Clean Air Science Advisory Committee comes a few months before an expected decision by the EPA to make a final rule drastically cutting diesel pollution.

EPA has said that diesel fuel pollutants were causing lung cancer and asthma attacks in children, a position affirmed by the 12-member advisory board.

EPA Administrator Carol Browner has for months said the agency would issue diesel regulations before year's end.

Clean air activists applauded the move by the science advisors, saying the decision ended a decade long debate over the issue of how to classify the soot from diesel, the so-called diesel particulate matter pollution.

After a very tense meeting on October 14, the CASAC voted unanimously to reach closure on the Diesel report, contingent on EPA staff making a number of changes in the document. Recommended changes include:

-- revising the reference concentration (RfC) for non cancer effects back down to 5 ug/m3, by including an additional safety factor of 3 for inter-species comparisons, as in the earlier draft.

-- putting numerous caveats on the characterization of the cancer risk of diesel, including mention that the risk could be zero, and that the general risk range mentioned in the document of 10 -3 to 10 -5 should not be used for purposes of quantitative risk assessment.

The issue of the carcinogenicity classification was not discussed.

31. Study Links Slow Lung Growth Rate in Children With Pollution

A study funded by the California Environmental Protection Agency's Air Resources Board (ARB) has revealed that exposure to high air pollution levels can slow down the lung function growth rate of children by up to 10 percent. The 10-year study is the nation's first large-scale effort to explore the effects of long-term exposure to outdoor air pollution.

In the October issue of the American Journal of Respiratory and Critical Care Medicine, a report on the study's first four years illustrate how nitrogen dioxide, particulate matter and airborne acids affect Southern California children. The project, known as the Children's Health Study, has a team of Southern California researchers, led by Dr. John Peters at USC, tracking the health of more than 3,000 students from fourth to twelfth grade.

At the study's start in 1993, USC researchers selected volunteers from 12 communities within a 200-mile radius of the Los Angeles area. The volunteers consisted of 150 fourth

graders, 75 seventh graders, and 75 tenth graders from each community. Each year the children were tested for lung function by measuring how much and how fast they could blow out air. The researchers found that the lung function growth of children who live in smoggier parts of Southern California is lower than those who breathe cleaner air. Children with lower lung function growth are more likely to have chronic respiratory problems in adulthood.

The ARB routinely tests air in the 12 communities, from Atascadero in the north to Riverside in the south. These locations were chosen because they exemplify the diversity of pollution levels present in California.

32. GM, Toyota to Join California Fuel Cell Partnership

The California Fuel Cell Partnership, a public-private venture to demonstrate fuel cell vehicles in California and explore the path to commercialization, has announced that automobile manufacturers General Motors and Toyota will accept an invitation to join the effort. The Partnership's executive Steering Team is expected to formalize GM and Toyota's participation in the next few weeks.

The Partnership -- which formally began in April 1999 -- includes auto manufacturers (DaimlerChrysler, Ford, Honda, Hyundai, Nissan, Volkswagen, and now GM and Toyota), energy providers (BP, Shell, Texaco), fuel cell companies (Ballard Power Systems and International Fuel Cells), and government agencies (the California Air Resources Board, California Energy Commission, U.S. Department of Energy, U.S. Department of Transportation, and the South Coast Air Quality Management District).

Together, the eight auto companies will demonstrate more than 60 fuel cell electric vehicles in California over the next three years. Initially, vehicles will be housed at the Partnership's state-of-the-art headquarters facility in West Sacramento, California - the largest concentration of fuel cell vehicles in the world. The grand opening ceremonies for the facility are scheduled for November 1, 2000.

33. EPA Ranks Cars By Pollution Levels For First Time

The U.S. Environmental Protection Agency has made public for the first time ever data that rank all new-model cars on the basis of their tailpipe emissions. The rankings are the pollution equivalent to the gas mileage ratings that EPA issues annually.

Vehicles account for almost one-third of all smog causing pollution. Nationwide, the number of miles driven each year is up 140 percent since 1970 to 2.8 trillion. In addition, half of new vehicles sold today are sport utility vehicles, which currently are allowed to emit as much as three to five times the pollution as cars. Smog causes millions of cases of respiratory ailments and is responsible for triggering thousands of cases of childhood asthma every year.

EPA's new Vehicle Emissions Guide web site is available at:

http://www.epa.gov/autoemissions

The site lists pollution levels for all model year 2000 and 2001 passenger vehicles sold in the United States, including cars, station wagons, pickup trucks, minivans, vans and sport utility vehicles. An emissions rank from 0 to 10, with 10 being cleanest, is assigned to each vehicle representing its cleanliness when compared to all other vehicles and ranges. This comparative rank is based on the tailpipe emission standards of nitrogen oxides and hydrocarbons, both of which contribute to

the formation of smog. For convenient comparisons, the web site also shows how clean a vehicle is compared to similar vehicles in the same class.

The new web site helps consumers make more environmentally informed choices when purchasing a vehicle. Consumers can select a vehicle model, determine how clean it is relative to other vehicles, comparison shop for similar vehicles, and choose the cleanest vehicle that meets their needs.

The web site includes emission information about more than 2000 individual vehicles for model years 2000 and 2001. For the 2001 model year, only three cars are rated a 10, the cleanest possible. Certain versions, but not all, of the Nissan Sentra, Toyota Prius and Honda Accord models earned a 10 ranking. These versions meet California tailpipe emission standards and are only available for purchase in California and some Northeast states. Designations of 8 and 9 rankings are reserved for vehicles that meet new standards established by the EPA last year.

Cleanest Model Year 2001 Vehicles

Model Name	Overall Emission Rank
Small Car	
NISSAN Sentra	10
TOYOTA Prius	10
Midsize Car	
HONDA Accord	10
Large Car	
BUICK LeSabre	7
BUICK Park Avenue	7
CHEVROLET Impala	7
LEXUS LS 430	7
MERCEDES-BENZ S500	7
PONTIAC Bonneville	7
Station Wagon	
FORD Focus*	7
MERCEDES-BENZ E320	7
SATURN LW200	7
VOLKSWAGEN Passat	7
VOLVO V70	7
Small SUV	
CHEVROLET Tracker*	6
CHRYSLER PT Cruiser	6
FORD Escape	6
JEEP Cherokee	6
KIA Sportage	6
SUBARU Forester	6
SUZUKI Vitara*	6
TOYOTA RAV4	6
Medium SUV	
ACURA MDX	5
JEEP Grand Cherokee	5

Cleanest Model Year 2001 Vehicles

Model Name	Overall Emission Rank
Large SUV	
BMW X5	4
DODGE Durango*	4

MERCEDES-BENZ ML320	4

Largest SUV

CHEVROLET 1500 Suburban	3
GMC 1500 Yukon	3
TOYOTA Sequoia	3

Small Pickup

CHEVROLET S10 Pickup*	6
FORD Ranger*	6
GMC Sonoma*	6
ISUZU Hombre*	6
MAZDA B2500	6
MAZDA B3000	6
NISSAN Frontier	6
TOYOTA Tacoma*	6

Medium Pickup

CHEVROLET S10 Pickup*	4
DODGE Dakota*	4
FORD Explorer Sport Trac	4
FORD F150	4
FORD Ranger*	4
GMC Sonoma*	4
ISUZU Hombre*	4
MAZDA B3000	4
MAZDA B4000	4
NISSAN Frontier*	4
TOYOTA Tacoma*	4
TOYOTA Tundra	4

Cleanest Model Year 2001 Vehicles

Model Name	Overall Emission Rank
Large Pickup	
CHEVROLET 1500 Silverado*	3
DODGE Ram Pickup1500	3
FORD F150*	3
GMC 1500 Sierra*	3
TOYOTA Tundra	3
FORD F150 CNG	5
Medium Minivan	
CHEVROLET Venture	5
FORD Windstar	5
OLDSMOBILE Silhouette	5
PONTIAC Montana FWD	5
Medium Van	
CHEVROLET Astro*	4
GMC Safari*	4
Large Van	
CHEVROLET Astro	4
DODGE Ram Van 1500	4
GMC Safari	4
Largest Van	
DODGE Ram Van 2500*	5
DODGE Ram Van 3500*	5
FORD E250 Econoline	5
FORD E350 (CNG)	5

34. Canada, U.S. Pledge To Ease Smog

Canada and the United States pledged to step up their fight against air pollution, finalizing a draft agreement that aims to lift the smog that costs thousands of lives across North America each year.

The agreement, finalized after eight months of discussions between Canadian and U.S. officials, specifically takes aim at ground-level ozone in the eastern half of North America - the industrial heartlands of both countries.

The cross-border agreement will require power plants and other stationary sources to cut their nitrogen oxide (NOx) emissions by 50 percent to 75 percent by 2004.

The United States will reduce NOx emissions by 35 percent by 2007, which implies a 70 percent reduction from power plants and major industrial sources. The aim is to reduce US annual emissions by 36 percent by 2010.

Both sides also pledged to cut production of volatile organic compounds (VOCs). These substances, when combined with nitrogen oxides in sunlight, create the deadly ground-level ozone.

For its part, Canada also plans to tighten its vehicle emission standards and bring them into line with those in the U.S., said Velma McColl, a spokeswoman for Anderson.

"Canada intends to put in place regulation by the end of this year that change the emission standards for light duty, trucks and (sport utility vehicles)," she said.

"Transportation is the single largest contributor to ground level ozone."

Official approval of the agreement, which also commits the two countries to ongoing pollution reduction, is expected to take place in Ottawa in early December.

ASIA-PACIFIC

35. Recent Developments in India

A. Fuel quality

The Supreme Court of India has directed the Ministry of Petroleum and Natural Gas (MoP&NG) to ensure that the National Capital Region of Delhi (which includes the national capital city of Delhi and bordering districts of adjoining states) is supplied with

-petrol with a maximum sulphur content of 0.05 % by 31st May, 2000
-petrol with a maximum benzene content of 1% by 31st March 2001
-diesel with a maximum sulphur content of 0.05% by 30th June 2001

B. Emission standards

The Ministry of Surface Transport (MoST) of the Indian Government has extended the "Bharat Stage II" emission standards (equivalent to Euro II) for passenger cars to the other metro cities. It may be recalled that the Euro II equivalent emission standards for passenger cars were enforced in Delhi under an order of the Supreme Court from 1st April 2000. According to the notification, the dates of enforcement will be

-Mumbai from 1st January, 2001
-Calcutta from 1st July, 2001
-Chennai from 1st July 2001

The date of enforcement for Mumbai is in keeping with the order of the Mumbai High Court.

However, for Calcutta, the Department of

Environment of the West Bengal Government has issued an order advancing the date of implementation of the "Bharat Stage II" standard to 1st November 2000 for the Calcutta Metropolitan Area. Since the availability of fuels of desired quality is a pre-requisite for complying with the new standards, the West Bengal notification confirms that both petrol and diesel with a maximum sulphur content of 0.05% will be available in Calcutta from 1st November 2000.

C. SIAM road map

Earlier, the Society of Indian Automobile Manufacturers (SIAM) submitted to the Government a road map for progressive reduction in emissions.

-Bharat Stage II compliant four wheeled non-commercial vehicles, light commercial vehicles and city buses in nine principal cities within six months of notification if fuel with 0.05% sulphur is made available.

-Passenger cars meeting Euro III equivalent standards from 1st April 2004 and Euro IV equivalent standards from 2007. This would be subject to availability of petrol with a maximum sulphur content of 150 ppm and diesel with a maximum sulphur content of 350 ppm.

-For commercial vehicles, SIAM has offered to comply with Bharat Stage II standards from 1st April 2003 for the whole country subject to availability of diesel with 0.05% sulphur. It has proposed to skip the Euro III stage and go directly to Euro IV stage by 2008 provided diesel with a maximum of 50 ppm sulphur is available.

-For two wheelers, SIAM has proposed emission standards of 1.5 g/km for CO and 1.5 g/km for HC+NOx from 2005 (a 25% reduction from the current 2000 standards). It has suggested targets of 1.25 g/km for both of the pollutants in 2009 but wants a review of these standards in 2005. Similar levels of reduction are proposed for three wheelers.

D. Alternate fuels

i. CNG

In July 1998, the Supreme Court had ordered the replacement of all 3 wheeled auto-rickshaws, registered in Delhi before 1990, by new ones running on CNG. The auto-rickshaw is a popular form of public transport and is used as a 'flag-down taxi' in most of the Indian cities. Bajaj Auto Ltd., the largest manufacturer of these vehicles in India, has launched a new CNG operated 3 wheeled vehicle in Delhi. Over 2,500 of these vehicles are already on the road and the company expects to replace all the 18,000 pre-1990 vehicles by end of March 2001. The new auto-rickshaw is powered by a 175 cc single cylinder, air cooled, four-stroke engine as against a 150 cc two-stroke engine used in the older petrol versions. Thanks to the low price of CNG in Delhi (Rs. 11.35 per kg against Rs 28 per liter of petrol) and superior fuel efficiency of the four-stroke engine, the fuel cost of the new vehicle is less than one third that of its petrol two-stroke predecessor.

ii. LPG

As per the Indian Motor Vehicles Act, use of LPG as an automotive fuel has, so far, not been legally allowed. The main reason for this is that it is sold at a subsidized price primarily as a kitchen fuel by the government controlled oil industry. A few years ago, the LPG sector was opened to private operators to import,

bottle and sell the gas to industrial and commercial users without any subsidy. Since LPG is considered as an environmentally cleaner fuel, the Indian Parliament has recently passed a bill seeking to remove any restrictions on use of LPG as an automotive fuel. The Government is now expected to issue the necessary notifications and safety standards.

E. Mumbai High Court

The High Court has yet to hold hearings on the recommendations of the Committee appointed by it. In the mean time, several affected parties, such as the automotive and the oil industries and the unions of taxi and auto-rickshaw operators have filed affidavits to the Court giving their views on the recommendations.

36. Recent Developments in Japan

The Japanese EPA is confident that the new tighter diesel standards and low sulfur fuel are on track for earlier introduction than previously planned, probably by 2005 at the latest. In September it is expected that the fuels decision will be announced and it is likely to be that 50 PPM sulfur will be the upper limit. A preliminary report will also likely be issued in August, concluding that diesel particulate increases the risk of cancer. A decision will be announced by the end of the year regarding the new standards for all categories of diesel vehicles but the actual number will likely be delayed until work on the new transient test procedure is completed sometime in 2001. Essentially the decision will state that new standards requiring the use of particulate filters or traps will go into effect by a certain date.

In addition the NOx law which has been in effect for several years in Tokyo and Osaka will be modified before the end of the year to focus more on particulate.

37. Interim Review Issued By Investigation Committee For Control Technology For Diesel Powered Motor Vehicles

The Environment Agency, Ministry of International Trade and Industry, and Ministry of Transport established in March 2000, an "Investigation Committee for Control Technology for Diesel-powered Motor Vehicles" so as to conduct a series of manufacturer hearings and verification tests in connection with exhaust emission reduction technology for in-use diesel-powered motor vehicles. In view of the fact that nitrogen dioxide (NO_2) and suspended particulate matter (SPM) air quality levels are still too high, especially in and around major cities, the investigation committee was formed to scrutinize the applicability and potential impacts of the exhaust emission control measures for in-use diesel-powered motor vehicles, in particular the reduction control technology for particulate matter (PM). So far, the committee has convened eight times and its interim review was released on July 28, 2000.

A. Evaluation of the PM Filters

Concerning each diesel particulate filter (DPF), the Committee found that the PM reduction effects are significant. However, there are some impediments to universal implementation, such as available space for mounting the system or the exhaust temperature profile due to sustained low speed operation. Interim conclusions for the systems investigated include the following:

- o Alternate regenerative type DPF (Type in which two filters alternately collect PM and are regenerated by burning the collected PM, using

electric wires or the like)

The DPF of this type can be used with the current diesel fuel without any restriction in terms of running conditions. However, from the standpoint of the vehicle construction there are some restrictions, such as the need of assuring a space for installing the DPF or the switching to a higher performance generator. For these reasons, it is believed that the DPF of this type can only be applied to only certain vehicle models. Furthermore, it is necessary to replace the sensors, at yearly intervals and the filters at intervals of around three years.

o Continuous regenerative type DPF (Based on oxidation by NO_2) (Type in which the filter is regenerated when the collected PM is eliminated continuously through the oxidation at a comparatively low temperature by using nitrogen dioxide (NO_2) generated by an oxidation catalyst located before the filter)

It is generally believed that, because of a restriction of NOx/PM ratio in the exhaust gas, there are difficulties for the DPF of this type to be applied to diesel-powered motor vehicles which were designed with only modest PM controls and NOx controls (i.e., before introduction of the short term standards). Moreover, it is necessary to maintain a certain temperature; hence, it is difficult for the DPF of this type to be applied to motor vehicles which run for a long period of time at low speeds. Further, with current high sulfur diesel fuel, NO_2 generation is insufficient due to the formation of sulfate. Therefore, DPFs of this type can be used on some motor vehicles but only after the introduction of low-sulfur diesel fuel.

o Continuous regenerative type DPF (Based on oxidation by catalyst) (Type in which PM is collected by the filter and the filter is regenerated continuously through the oxidation at a comparatively low temperature by the operation of a catalyst carried on the filter)

This system requires the exhaust temperature to be maintained above a certain level. Hence, it is difficult for this type of DPF to be applied to motor vehicles which run for a long period of time at low speeds. Also, although this DPF can be used with current high sulfur diesel fuel, the PM reduction effects are reduced due to the formation of sulfate during heavy-load operation. Therefore, it is believed that DPFs of this type can only be used on some motor vehicles which have satisfied the running conditions.

o Intermittent regenerative (batch) type DPF (Type in which PM is collected by the filter and the filter is regenerated by means of an external power supply when the vehicle is not in operation)

Theoretically speaking, the DPF of this type can be used on any vehicle models. However, the amount of PM that can be collected in a single regenerative operation is limited. Therefore, it is difficult for this DPF to be applied to those motor vehicles which must cover a long distance in a single run. Although the DPF can be applied to those motor vehicles which cover a short distance in a single run, it is mandatory that the operator is a person capable of competently carrying out the management of the regenerative operation, etc. and power supply facilities for regenerative use be available.

B. Potential Impact

If it were possible to mounted DPFs on all in-use motor vehicles, the maximum PM

reduction effects would be obtained. However, for the reasons noted above, the mounting ratio of DPF will remain at a low level. Consequently, accelerating the switching to those motor vehicles conforming to the latest emission control standards will bring greater PM reduction effects.

If the switching to those motor vehicles conforming to the latest emission control standards is promoted, the motor vehicles conforming to the 1989 standard will be replaced at an earlier stage. Therefore, the effect of mounting DPF for the remaining period would not be great.

It is estimated that the price of DPF is 500,000 to 800,000 yen in the case of trucks; 700,000 to 2,400,000 yen in the case of buses.

C. Recommended Approach

With regard to exhaust emission control measures for in-use diesel-powered motor vehicles, it is desirable that the measures be enforced according to the following basic approach enumerated below.

Under the current situation where the attainment of the environment quality standards of NO_2 **and** SPM is difficult, it is necessary to reduce both emissions of NOx and PM. However, the installation of DPF on in-use motor vehicles is only effective for PM. Therefore, it is more appropriate that old diesel-powered motor vehicles be switched to those motor vehicles conforming to the latest emission control standards which reduce both NOx and PM.

In respect to DPF, the present situation is such that DPF can not be installed on **all** in-use diesel-powered motor vehicles. Hence, it is impossible to enforce obligatory installation of DPF uniformly on all motor vehicles concerned. Nevertheless, it is still feasible to install DPF on motor vehicles of some limited vehicle models and running conditions. Therefore, it will be effective if an incentive be granted to the mounting of DPF for some motor vehicles in which the mounting of DPF has significantly good effects.

The following are the contents of specific measures to be taken according to the basic approach above.

As for diesel-powered motor vehicles which meet only standards prior to the 1989 standards, their emissions of both NOx and PM are great. Hence, it is desirable that the switching to those motor vehicles conforming to the latest emission control standards be promoted. Moreover, except for those motor vehicles whose average number of years of use is anticipated to be especially great, the remaining usable period after the mounting of DPF is short. Therefore, the need for promotion of use of DPF by giving incentive to this category of vehicles is not high.

As regards the motor vehicles conforming to the short-term standard, from the viewpoint of reduction of both NOx and PM, it is recommended that the switching to those motor vehicles conforming to the latest emission control standards be promoted. Furthermore, inasmuch as they can be operated for a considerably long period of time even after the installation of DPF, such a measure is believed to be sufficiently effective that an incentive should be given to those motor vehicles where the mounting of DPF is possible so as to encourage the installation thereof.

In respect to the motor vehicles conforming to the long-term standard, in which the emission control has been drastically strengthened, the need for taking special promoting measures

is not high at present.

As for the applicable vehicle models for mounting DPF, it is desirable to select those motor vehicles in which the restricting conditions for the mounting are satisfied and the remaining usable period after the mounting is long. Furthermore, those motor vehicles have a higher priority as eligible vehicles for receiving an incentive.

D. Future Work

Confirmation to be continued through durability testing verification research for DPF technology.

a Review of methods of control and incentives that should be taken in the future to realize the proposed specific measures. Feedback to review of the Automobile NOx Control Law;

b Earlier sales of motor vehicles with excellent exhaust emission control performance even before the start of the mandatory requirements. Development of the aftertreatment devices, such as DPFs, that can be applied to a greater vehicle models and running conditions;

c Supply of diesel fuel with lower sulfur content and improvement of its infrastructure;

d Study of constant requirements to be satisfied by DPF. Institution of type approval system of DPF;

e Study of measures to encourage the check and maintenance for motor vehicles.

Regarding retrofits, Tokyo officials remain optimistic that their plan can succeed. With regard to the interim report, they counter that the mandatory retrofit scheme will not go into effect until 2003, by which time low sulfur (50 PPM Maximum) will be widely available. They say they have been assured by the oil industry that 20 to 30% of the fuel sold in all of Japan will be low sulfur by April of 2003 and that this will rise to 80% by October of that year. Further, while recognizing that low speeds and temperatures are a problem, they are working closely with JM and Engelhard engineers to adjust the systems to deal with this condition. They intend to initiate a trial with 10 buses using each system as soon as they can line up an adequate supply of low sulfur fuel at a reasonable price.

38. Low Sulfur Diesel Available in Hong Kong

Ultra low sulfur diesel fuel (50 PPM maximum) is now available in Hong Kong and priced lower than high sulfur diesel as shown below.

Motor Diesel ($/liter)	(0.05%S)	(0.005%S)
Fuel Duty	2.00	1.11
Pump Price	6.44	6.35

39. BP Australia to Slash Sulphur in Diesel to 50 PPM

BP Amoco PLC unit BP Australia Ltd has announced that its Bulwer Island refinery in Queensland would produce 50 parts per million sulphur content diesel fuel within two months following a A$500 million upgrade.

The redevelopment will raise the refinery's output to around 80,000 barrels per day in October from 75,000 bpd, with output likely to reach up to capacity of 88,000 bpd next year.

Business development manager Tim Wall said the upgrade, to be completed three months early, included Australia's first 17,000 bpd hydro-cracker, allowing processing of heavy Middle East crudes which are generally cheaper than local sweet crude.

"Part of the project is to be able to not only produce lower sulphur fuel, but to be able to do it from higher sulphur, heavier feedstocks," Wall said.

BP has moved ahead of other Australian refineries to produce 50 ppm sulphur diesel, which the Federal government has mandated to be introduced from January 2006.

The investment needed to meet tougher clean fuel standards is forecast to add to the financial pressures which could close at least two of Australia's eight refineries in the next few years.

BP refinery business unit manager Kevin James said the Bulwer Island low sulphur diesel would be a ten-fold decrease on current Australian standards and at a level not required in most European countries until 2005.

"The move to tighter fuel quality standards will enable us to capture the full benefits of new engine technologies," he said.

"Of more immediate impact, the ultra low sulphur fuel will reduce emissions in all vehicles including those already in the Australian fleet which use older engine technologies."

The refinery investment included an industrial gas plant established by BOC Gases Australia and a 32 megawatt cogeneration plant, undergoing commissioning, to provide power and steam for the refinery.

BP Australia also announced that it would provide lead-replacement petrol to more than 120 of its outlets in Brisbane, the Gold Coast and the Sunshine Coast by September 1.

It said Brisbane had been identified as one of 40 cities around the world where BP believed it could make a difference to air quality through the manufacture and supply of cleaner fuels.

Australia's other refiner marketers are Caltex Australia Ltd , half-owned by a joint-venture of Texaco Inc and Chevron Corp , and local units of Royal Dutch/Shell and Exxon Mobil Corp .

40. GM Seeks to Reduce Precious Metal Use

General Motors Corp, the world's largest automaker, has announced in Thailand that it is investigating ways of reducing the palladium and platinum content of its car catalysts amid a surge in the price of the two metals.

"Yes, our manufacturers are going to reduce the loading of precious metals in the catalyst," GM Chairman Jack Smith said at a news conference in Thailand to mark the official opening of a new plant.

"I think you will see a great deal of effort to reduce...the loading in the catalyst through technological improvement," Smith said.

"Secondly there will be very effective programs to reclaim used catalysts to allow us to reduce (use of) the metals. Both strategies are important to reduce the reliance on sources in Russia and South Africa."

Palladium, used in car catalysts to cleanse noxious gases, surged to a new all-time high this week.

Platinum, used in jewelry but also in catalysts and electronics, reached 12-year highs.

Stricter emission control standards globally will boost demand over the next few years, although car makers are scrambling for

substitutes, particularly for palladium, whose price has risen from just $120 an ounce in 1997.

41. Recent Developments in Hong Kong

Hong Kong continues to move aggressively to address its motor vehicle related air pollution problem, especially as it relates to particulate. Relative to a 1997 base year, it has set emission reduction targets of 80% for PM and 30% for NOx by 2005.

Their program has four primary elements - conversions of diesel taxis to LPG, introduction by means of tax incentives of low sulfur diesel fuel, retrofits of existing diesel vehicles, and in the longer term, introduction of fuel cells for buses.

A. Conversions

There are about 18,000 diesel taxis in Hong Kong and almost 14,000 of these have been converted to operate on LPG. Within 5 years all taxis must be converted.

B. Low Sulfur Fuel

Through a shift in tax policy, so called ultra low sulfur diesel (ULSD) fuel (maximum 50 PPM) has been made cheaper than higher sulfur fuel. As a result, almost overnight all 160 retail fueling stations in Hong Kong are now offering the ULSD and it has captured virtually all of the retail market. However, there is a significant fraction of non taxed or illegal fuel which comes across the border from China and this fuel remains high in sulfur. In addition, the fuel used in buses is exempted from taxes and therefore most of this fuel remains higher sulfur.

C. Retrofits

All pre Euro 1 buses in Hong Kong are being retrofitted with diesel oxidation catalysts. Approximately 2000 buses have been fitted or will be fitted in the next few months.

Beyond franchised buses there are about 40,000 diesel vehicles under 4 tons in size (including the taxicabs mentioned above). All of these vehicles are eligible for a subsidy of 1300HK$ to install a diesel particulate retrofit filter. This would fully cover the cost of the system developed by the Hong Kong Polytechnic University. This system results in a modest PM reduction of about 30%; durability is not known. It is also not clear how many vehicles have installed these systems. Some operators have voluntarily installed more sophisticated systems such as the Engelhard catalyst which can cost from 4000 to 7000 HK$.

Beyond these ongoing efforts, pilot projects are underway to assess the feasibility of catalytic converters and diesel particulate filters in a variety of applications. Depending on the results from this work, significant additional retrofits could be mandated or encouraged. Significant problems exist, however. First of all, experience to date has been mixed. A number of systems have been found to be cracked or otherwise damaged and in one case engine damage is suspected to have been caused by the retrofit system. Secondly, many of the buses as noted earlier are still using higher sulfur fuel (up to 500 PPM) which limits the use of some systems. Finally there is a serious concern that the retrofits, especially those that rely on NO2 to lower the particulate combustion temperature, will actually increase the fraction of NO2 exhausted from vehicles. Because Hong Kong has numerous tunnels and because these tunnels are required to be ventilated sufficiently to meet a specific NO2 air quality standard, and because these tunnels are only slightly under the standard at present, Hong

Kong is reluctant to introduce any system into the marketplace which could trigger exceedances.

D. Fuel Cells

The Director of the Pollution Control Department, Mr. Rob Law, has a special interest in fuel cells. He thinks they could be ideally suited to the densely populated corridors of Hong Kong and as a relatively wealthy country he believes that the Region might be able to afford to take a leadership role in simulating their introduction. He has visited the Ballard company in Canada and is actively pursuing an effort to get a fuel cell bus to Hong Kong before year's end. In addition a wealthy Hong Kong investor has recently purchased a company with a proprietary technique to produce hydrogen fuel.

42. Beijing Plans Major Effort For 2008 Olympics

Beijing has reportedly earmarked $17.8 billion to tackle traffic congestion and pollution in an effort to capture the 2008 Olympics. The Chinese capital will start 50 environmental and transportation projects before the end of the year, the China Daily quoted city government sources as saying.

As part of the facelift, nine central thoroughfares will be widened, two subway lines with 82 km (51 miles) of new track will be built and coal-fired boilers will be replaced by natural gas.

The capital will build green belts along major waterways and around the city, the China Daly said.

Beijing has already vowed to boost its number of smog-free days by replacing diesel buses with vehicles that run on clean-burning fuel and by implementing strict emissions tests.

The city government has promised an ambitious build-up of its roads and a crackdown on errant motorists and illegal parking to tackle traffic snarls and lawless driving.

An International Olympic Committee (IOC) delegation is slated to visit Beijing between February and April next year and the winning bid for the 2008 Games from final candidates Beijing, Paris, Toronto, Osaka and Istanbul will be announced in July.

At the Sydney Games, representatives from several of the competing cities have spoken of Beijing as the frontrunner.

China's bid has many things going for it, with many of its sports facilities, airports, hotels and restaurants already up to international standards. The Asian sports power, which finished fourth in the medals table in the last two Olympics, has also been applauded for axing 27 athletes from its team ahead of the Sydney Games, a number of them for "suspicious" blood tests.

Asia has only hosted the Games twice, in Tokyo in 1964 and Seoul in 1988, giving Beijing a theoretical advantage over main competitors such as Paris and Toronto.

Beijing sought to host the 2000 Olympics but lost out to Sydney by just two votes.

Earlier this month, Mayor Liu Qi, trumpeting the official slogan "New Beijing, Great Olympics", said the city government saw the 2008 Games as a chance to boost the image of the Communist capital.

LATIN AMERICA

43. Chile Struggles With Rising Pollution

Santiago, the capital of Chile, with over 1 million cars for a population of 6 million, combined with low wind and high mountains, has become the eighth most polluted city in the world, according to the World Health Organisation.

Smog is a great leveler in Santiago, worrying the rich and poor alike. Some western embassies in Santiago reportedly now even advise officials with young children or those who suffer from respiratory problems against taking jobs in Santiago and offer bonuses and time off during the winter, when smog is at its worst. Only Mexico City and São Paulo in Latin America are worse.

Away from the sleek skyscrapers that make up the business district or "Sanhattan" as it is known, lie vast districts of *poblaciones,* shanty towns, and *campamentos,* squatter settlements, where the poor live. They lie among factories and industrial units that serve the whole of Chile.

Santiago implements a system of vehicle restrictions on days when the smog is considered to be at its worst. The government recently announced it would even include vehicles with catalytic converters in the restrictions, reversing an earlier pledge that such vehicles would be exempt.

The National Environmental Commission (Conama) has also decided not to reduce the diesel tax in the Santiago metropolitan region, although it is being lowered by 30 per cent in the rest of the country.

Next year, Conama will also lower the amount of sulphur allowed in diesel fuel to match that set by the Environmental Protection Agency in the US.

Smog cost the Chilean economy about $1bn in medical expenses and sick days in 1998. Conama, which is pushing for more green spaces and better public transport in the city, says the government needs to spend about five times the $60m it spends a year to reduce smog.

44. Radiation Alert Under Ozone Hole in Southern Chile

A wide swath of southern Chile was placed on alert as dangerous levels of ultraviolet radiation hit peaks because of the depletion of the protective ozone layer over the Antarctic. Health authorities warned the residents not to go out in the sun during the day.

The ozone hole over the Antarctic this year has reached its deepest since scientists began measuring it 15 years ago, with more than 50 percent depletion being recorded throughout most of the hole, United Nations experts announced.

The tip of the Americas is the only landmass outside the Antarctic exposed to ultraviolet radiation from the ozone hole.

Health authorities called an orange alert - the second most dangerous level in a scale of four - in which ultraviolet (UV) exposure can cause skin burns in 7 minutes. A red alert can provoke burning in 5 minutes.

Experts from the United Nations' World Meteorological Organisation (WMO) said the ozone hole is at its deepest level on record and that "near total destruction" of the ozone in some layers of the stratosphere had been observed since the middle of September, much earlier than in previous years.

Extremely low temperatures in the stratosphere during the southern hemisphere's winter spark off the chemical ozone depletion, a process that accelerates as the region enters spring-time.

For more than a decade, the hole has appeared in late August or early September, with the phenomenon peaking in the first week or two of October, a clear sign that greenhouse gases are eating away the earth's protective layer.

All 12 monitoring stations around the rim of the Antarctic have reported measurements of ozone this spring that are 50-70 percent below the norms in the years 1964-1976, before the ozone hole was detected, the Geneva-based WMO said.

An image released by the National Aeronautics and Space Administration (NASA) on Sept. 8 showed a hole appearing as a giant blue blob, totally covering Antarctica and stretching to the southern tip of South America.

NASA said the hole spread over 11 million square miles (28.3 million square km), an area three times larger than the land mass of the United States.

GENERAL

45. United Nations Announces Agreement On Motor Vehicle Emissions

The United Nations announced an international agreement, that goes into effect Aug. 25, to develop globally uniform environmental regulations for motor vehicles. These regulations will help to uniformly provide greater environmental protection, energy efficiency, vehicle safety and pollution reduction from automobiles for countries who are members of the United Nations. Current levels of environmental protection and vehicle safety will not be compromised in order to achieve this regulatory uniformity called harmonization. This agreement ensures that regulatory activities will be carried out in an open manner and will consider the best available technology, the cost effectiveness of these technologies, as well as the benefits to public health. Participating countries may submit candidate regulations that will be included in a compendium of regulations that other countries can adopt.

These countries may also collaborate in the development of new global regulations which they could propose to adopt in their country. Any regulation that the United States chooses to adopt would be subject to the formal United States regulatory process. The development of the Agreement was spearheaded by EPA and the Department of Transportation. The United States was the first to sign the agreement, followed by Canada, Japan, France, England, the European Union, Germany and Russia. South Africa also signed the agreement and is waiting to be ratified.