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# CAR LINES

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## EUROPE

### 1. Low Sulfur Gasoline Introduced In Germany

Shell has just agreed to provide a grade of gasoline at all 640 stations in Germany with a maximum sulfur content of 10 ppm. It will be priced at 4 pfennigs/liter higher than high sulfur fuel. BP Amoco will market a similar fuel in Munich. Germany expects that this will maintain strong pressure on the European Commission to approve their tax incentive scheme to encourage 100% 10 ppm fuel (gasoline & diesel) by 2003.

It is expected that when the European Commission proposes additional fuel modifications later this year (they are already late as the proposal was due by the end of last year, the Parliament will offer amendments to require 10 ppm sulfur by 2007 all across the EU.

### 2. EU Agrees To Further Pollution Cuts From Industry

The 15 countries of the European Union have reached agreement to strengthen limits on the amount of health-damaging air pollution their industries can emit - going further than a 1999 pan-European agreement.

The commitments, which the European Parliament still has to agree on, aim to ease urban smog, reduce acid rain and cut river and lake pollution.

The draft legislation sets individual limits for each country for sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), ammonia and volatile organic compounds, the same pollutants targeted by a United Nations protocol that European governments signed in Gothenburg, Sweden, in December. The EU executive in charge of the environment, Margot Wallstrom,

had been pushing EU countries to go further than the Gothenburg protocol, which was also signed by central and eastern European countries.

Alongside the emissions limits that must be reached by 2010, the ministers approved draft legislation to clean up emissions from EU power stations and large industrial boilers, among the biggest sources of SO<sub>2</sub>, NO<sub>x</sub> and dust.

The new rules would make emissions limits for modern plants twice as strict as they are at present. Plants licensed before 1987 would be covered by EU legislation from 2008 for the first time.

Wallstrom said the package of measures would take the EU more than half way towards meeting its health-related targets for summer smog and two-thirds of the way towards meeting acidification targets.

### 3. Honda Sets 103 MPG Fuel Economy Record

Honda's all-new Insight coupe has set a new UK fuel economy record of 103 mpg after completing a non-stop 3,737 mile 'Round-Britain' run. Honda hopes to re-write the Guinness Book of Records once all the details of its record run have been verified by the publisher next month. The full figure of 102.65 mpg smashes the existing petrol-car record (85.96 mpg) set back in 1993 and is believed to be a world record for a standard production car driving on public roads.

Following the coastline of England, Wales and Scotland, along a 'clock-wise' route laid down by 'Guinness', the Insight visited more than 25 check-points and completed the course comfortably inside the 180 hours permitted by the rules. The record drive was virtually continuous over a seven-day period and took

drivers as close to the coast as was practicable. It meant encountering normal motoring hazards, through congested cities and sleepy villages, across slow and hilly terrain and getting lost in the dark.

"The Insight has performed like clockwork throughout this non-stop event and its performance was right up to my expectations," enthused Dr Shigeru Miyano, the economy-run organizer and current UK mpg record-holder. The Kumamoto-based medical doctor was delighted with the result. "On the first day we averaged 88.53 mpg along the crowded south coast route to Exeter, but then every day the consumption improved

"By the time we reached Inverness on Day 6 the overall fuel figure was up to 101.08 mpg so we knew the record was ours as the run coming down the East coast of England always uses less fuel. On the section between Newcastle and Great Yarmouth the Insight achieved an amazing 113.44 mpg."

Cars attempting a Guinness record-run in the UK must be standard cars available to the public. The Insight goes on sale on 1 September priced at GBP17,000 on the road.

Three teams of six drivers from seven countries took turns piloting the Insight on this quest for ultra-economy. The Honda used BP Unleaded Fuel and the record run was supported by BP Oil UK Ltd. Among the 18 drivers was Amanda McLaren, daughter of the late racing driver and founder of the Formula 1 team, Bruce McLaren.

Honda's challenger for a place in the record book is a 'hybrid' two-seater coupe that blends a mass of new technologies to achieve several world 'firsts'. Powered by a petrol engine and an electric motor, it is the world's most economical volume-produced petrol engine car and the most aerodynamic,

with a drag figure of 0.25 Cd. Before the record run, Honda's Insight had achieved 83 mpg in the Government 'combined' fuel economy test, with 68 mpg in the city driving 'urban' test and over 94 mpg in the country road 'extra-urban' cycle

The Insight uses a petrol engine and a 10 kW electric motor. The ultra-thin (60mm) DC-brushless motor is mounted between the 1.0-liter, 3-cylinder, low-friction VTEC petrol engine and the lightweight 5-speed manual transmission. During acceleration the electric motor 'assists' the petrol engine, increasing performance to the level of a 1.5-liter petrol engine.

Although the Insight can accelerate to 62 mph in 12 seconds and has a top speed of 112 mph - its performance is achieved with ultra-low emissions. In normal driving the car produces 80 g/km of CO<sub>2</sub>, and CO, HC and NO<sub>x</sub> are way below the future EU limits for 2005. A new-type catalytic converter directly absorbs NO<sub>x</sub>.

Unlike a pure battery-powered electric vehicle, this Honda does not require an outside source of electricity. The electric motor acts as a generator during deceleration to recharge the Power Pack mounted between the rear wheels.

#### **4. DaimlerChrysler Announces Fuel Cell Vehicles in 2 Years**

German-American auto maker DaimlerChrysler AG has announced that it will bring fuel-cell vehicles to the market within two years.

Speaking at a news conference in Hanover, DaimlerChrysler Chief Executive Juergen Schrempp said that public transport buses would be equipped with fuel cells in just two years time. Two years later the first passenger cars would be fitted with fuel-cells,

Schrempp said. This followed a similar statement in a keynote speech earlier in the day at the World Engineers Conference.

"In just two more years, DaimlerChrysler will be the first worldwide auto maker to bring fuel-cell vehicles to the market," the group said in a statement.

### **5. Non Road Vehicles Becoming More Important Emissions Source**

According to a recent study by the Swedish EPA<sup>1</sup> (As summarized in Acid News) non-road vehicles and engines contribute 20 per cent of the nitrogen oxides (NOx), 7 per cent of the volatile organic compounds (VOCs), between 4 and 8 per cent of the particulate matter, and 6 per cent of the carbon dioxide that gets into the air in Sweden. Among the types of equipment that are chiefly responsible for all this are farm tractors, earth-moving equipment, lift trucks, forestry and other off-road machines. Lighter types include lawn mowers, chain saws, and mobile compressors.

Some 170,000 of the tractors, 300,000 in all, are used in agriculture, together with 40,000 threshers. Forestry employs altogether about 10,000 machines in the form of harvesters and tractors. There are also the various types of movable equipment used at ports and in construction work, in mines and in industry. Of the country's 130,000 snowmobiles only 20 per cent are used for pleasure, the rest for work. With the exception of snowmobiles, which are usually powered with two-stroke petrol engines, almost all the equipment in question is diesel-driven.

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<sup>1</sup>Arbetsmaskiner – Utsläpp och förslag till tekniska åtgärder. (Swedish only.) By Kjell Karlsson. Report 6001.

A first step towards exhaust standards for new diesel engines in many types of mobile machinery in the EU came last year with directive 97/88/EC. A second step, which has already been decided upon, will come into force for such engines in stages between 2001 and 2004. The standards, however, will only apply to diesel engines within the range of 18-560 kilowatt (kW). The directive does not include farm tractors and mobile generating equipment – the Commission having chosen to put the emission requirements for the former in another, existing directive, for type approval. Acceptance by the European Council is expected this year.

The Commission has moreover been enjoined to produce a proposal for a) a standard for petrol-driven machines, and b) for stricter requirements (a third step) for those with diesel engines, including mobile generators. The proposal should have been ready this year, but has been delayed – a principal reason being that the Commission is seeking to harmonize EU standards with those of the United States, where Phase 1 for small petrol-driven machines had been introduced in 1997. The EPA has recently put forward a proposal for a Phase 2, tightening up the requirements. For diesel engines, so-called Tier 1 emission standards were starting to be applied in 1996, followed by Tier 2 in 1999. Even more stringent Tier 3 standards are scheduled to come into force in 2005.

The requirements of steps 1 and 2 of the EU directive should result in a reduction of Sweden's emissions of nitrogen oxides from the machines in question by 40-45 per cent between 1995 and 2010. During that period emissions of VOCs would decline at the most by 10 per cent, and those of particles by 15-20 per cent. Since however the emissions from other main sources, such as road traffic,

are expected to fall off more quickly, by 2010 the proportion from miscellaneous machinery is likely to be greater than it is today.

Among the measures for a still further reduction of the emissions from diesel-driven equipment that were analyzed in the study are the following:

Stricter exhaust standards. It is assumed that the EU's step 3 will apply from 2008, and will halve the emissions of NO<sub>x</sub> and particles, and reduce those of VOCs by one third, compared with the effect of step 2. It is thought that the stricter requirements could be met simply by engine improvements – i.e. without after-treatment of the exhaust gases with particle traps or de-NO<sub>x</sub> catalyzers.

Accelerated introduction of cleaner equipment. It is assumed that procurement requirements and environmental classification, in combination with financial instruments, will have as a result that the new machines sold in Sweden, including farm tractors, will fulfill the requirements of step 3 as early as 2006.

Particle traps. Retrofitting should make it possible to reduce particle emissions by 80-90 per cent or more. Particle traps combined with oxidizing catalyzers (CRT technique, Continuously Regenerating Trap) would in addition reduce the emissions of VOCs by about 80 per cent.

Oxidizing catalyzers. Fitted to diesel engines they can reduce VOCs by more than 80 per cent, as well as

cutting down emissions of carbon monoxide.

Particle traps plus EGR. Retro-fitting of EGR (Exhaust Gas Recirculation) can more than halve NO<sub>x</sub> emissions. Adding CRT (see above) would in addition reduce the emissions of VOCs by more than 70 per cent and those of particulate matter by about 85 per cent.

Conceivable measures for petrol engines that were also examined included:

Exhaust-gas cleaning. There is already an American standard, which could be applied in Europe – through an EU directive, environmental classification, procurement requirements, or voluntary agreements. It would bring emissions of VOCs down by 70 and of NO<sub>x</sub> by 10 per cent. It would in addition cut down fuel consumption, and so carbon-dioxide emissions, by up to 30 per cent.

Retrofitting of catalyzers. It is estimated that this could halve both VOC and CO emissions from existing petrol-driven equipment, such as lawn mowers.

Switching to electric propulsion. Could be accelerated, for lawn mowers, etc., through procurement requirements and environmental classification.

The study gives estimates both of the cost and the likely effect of the various measures in reducing emissions. It is said that by combining them as indicated above, the emissions of nitrogen oxides, VOCs and particulates could be reduced by up to 60 per cent between 1995 and 2010, and further to

80 per cent by 2020. There should be a concurrent reduction of fuel consumption by about 20 per cent, and thus also of CO<sub>2</sub> emissions. The author of the study is however less optimistic, considering that NO<sub>x</sub> emissions can be reduced by no more than 50 per cent by 2010 and 60 per cent by 2020, VOCs by 35 and 60 per cent, and particles 45 and 70 per cent.

What in particular emerges from the study is that the emissions from these types of equipment, especially of NO<sub>x</sub> and VOCs, really are considerable, being put for the EU countries, for instance, at 7 per cent of their total emissions of nitrogen oxides. Since several countries have failed to report any emissions from these sources at all, that figure is most probably an underestimate.

It is also evident that the relative share of the emissions from such equipment is increasing – the reason being that the matter has long been overlooked. It should be noted, too, that some of the proposed measures for remedying the situation, such as the fitting of catalyzers, will mean that the improved fuels that are now coming into use in the EU for road vehicles will also have to be made obligatory for the types of equipment that are the subject of the Swedish study.

It turns out that several of the proposed measures would be highly cost-effective – in the sense that the cost per kilogram of pollutant that is eliminated would be low compared with that for many of the measures that have either been adopted or are under consideration for dealing with emissions from other sources. Some of the measures proposed in the study would also have the side-effect of reducing emissions of the chief greenhouse gas, carbon dioxide. It would therefore be advisable for all countries that are striving to bring down emissions of air pollutants in a cost-effective manner to make

a careful analysis of their emissions from mobile equipment, and develop strategies for dealing with them, followed by action.

## **6. EU Requests Comment on Need To Reduce Sulfur Levels Below 50 PPM**

EU Commissioner Margot Wallström has launched a "Call for Evidence" regarding the appropriate level for the sulphur content of petrol and diesel used in the Community. This is an important issue because sulphur in petrol and diesel influences the emissions of local-scale pollutants, acidifying gases, ozone precursors and has a role to play in improving the fuel efficiency of new cars.

The specifications for petrol and diesel fuel sold in the Community are described in Directive 98/70/EC. From the 1<sup>st</sup> January 2005 petrol and diesel must contain no more than 50 parts per million of sulphur, a level that was agreed by Council and Parliament at the end of the Auto-Oil I Program. However, the other environmental parameters have not yet been fixed for 2005 (except for the levels of aromatics in petrol) and the recent analysis in Auto-Oil II has focused on these parameters rather than sulphur.

The technological development of automotive engines and emissions abatement equipment coupled with a greater desire to make progress on issues such as climate change has raised the issue of sulphur in fuel and the level that is appropriate to keep pace with these new developments. In keeping with the highly participatory approach of the two Auto-Oil Programs Commissioner Vällström invited all potential stakeholders to express their views and to present any relevant findings on this very important issue. Several specific issues were identified for comment:

- the environmental benefits of lower sulfur

the incremental refining costs of lower sulfur  
 new vehicle propulsion or powerplant technology  
 impact on other fuel parameters  
 logistical impacts  
 well to wheel impact on greenhouse gases

Ultimately, all of the submitted contributions will be synthesized and reviewed by a panel of independent experts. The Commission will then bring forward a proposal to amend the current legislation in respect of the remaining fuel parameters and, if appropriate, the sulphur content of petrol and diesel.

#### **7. New German Report Finds Anthropogenic Emissions Dominant Cause of Global Warming**

A new report carried out with support from the German Federal Minister for the Environment, Nature Conservation and Nuclear Safety has been published.<sup>2</sup> The study carries out a 'cause-related time series separation', matching the climate time series under consideration with the following forcing parameters: greenhouse gases (GHG, in the form of CO<sub>2</sub> equivalents), tropospheric sulfate aerosol (SUL, again anthropogenic), explosive volcanism, solar activity, ENSO (El Niño / Southern Oscillation) and NAO (North Atlantic Oscillation). In the case of the global mean temperature variations 1899 - 1998 an amount of 59.9% of explained variance can be

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<sup>2</sup>"Statistical Analyses for the Purpose of an Early Detection of Global and Regional Climate Change due to the Anthropogenic Greenhouse Effect", Final Report of the Research Project No. 297 41 132 by Order of the Federal Environmental Agency, Germany 2000

attributed to the anthropogenic GHG forcing (total explained variance 79.7%) and the related signal (+ 0.7 K) exceeds as early as in 1973 the 99.9% confidence level.

#### **8. EU Greenhouse Emissions Down Slightly**

The EEA, through work by its European Topic Center on Air Emissions, has compiled the official European Community Greenhouse Gas Inventory 1990-1998. The report is mainly based on data from the individual Member States, submitted to the European Commission under the EU greenhouse gas Monitoring Mechanism. The methodologies applied are those agreed upon by the UN Framework Convention on Climate Change (UNFCCC). The European Commission submitted the inventory to the UN Framework Convention on Climate Change (UNFCCC) in accordance with the 15 April 2000 deadline.

Carbon dioxide (CO<sub>2</sub>) makes the largest contribution to EU greenhouse gas emissions (81%), while methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) (total of 19%) are other important greenhouse gases. In addition industrial fluorocarbon gases contribute approximately 1% to the total greenhouse gas emissions.

Total EU greenhouse gas emissions have fallen slightly (2%) from 1990 to 1998. To achieve the UNFCCC Kyoto Protocol target of 8 % reduction by 2008-2012 (from 1990 levels) for the EU, further reductions of emissions, through additional policies and measures, will be necessary.

The reduction is mainly due to a decrease in two Member States (Germany, United Kingdom), while in most Member States emissions have increased since 1990. Total EU CO<sub>2</sub> emissions decreased initially in the early 1990s, but started to increase again, and are now on the same level as in 1990.



The energy sector (power and heat generation) is the main contributor to EU emissions (32%), followed by transport (24%) and industry (18%). Substantial decreases occurred only in Germany, mainly due to increased energy efficiency and economic restructuring in former East Germany, and in the UK, mainly due to a switch from coal to natural gas.

Total EU methane emissions fell by 16% from 1990 to 1998 for similar reasons as mentioned above for CO<sub>2</sub> and account for most of the decrease of the total EU greenhouse gas emissions. Nitrous oxide emissions were reduced by 10%, mainly due to reduction measures in industry.

The EEA will publish later this year a more detailed assessment of the EU greenhouse gas emission trends and the sectors that contribute and of the progress of the EU and of each individual Member State towards achieving the UNFCCC and Kyoto Protocol targets.

### **9. Environment Bill for Accession To EU May Be Overestimated**

The European Union has overestimated the burden of investments needed by eastern European candidate countries to bring their environments into line for membership of the bloc, according to a new think-tank analysis. A 1998 assessment cited by the EU has said that eastern candidates will need 120 billion euros to adapt to the tough standards, particularly in the area of water and power legislation. On the basis of that estimate, candidate countries have said they will need long periods of grace before taking on the EU's standards, meaning that the issue is expected to be one of the toughest to crack in the EU's expansion talks.

But the Center for European Policy Studies

said in a report presented to the European Commission the figure could be revised downwards, making negotiations on the environment less difficult than expected. It said the bill for the manufacturing industry would be lower than expected as part of these countries' capital stock will have been replaced anyway to achieve the quality, productivity and energy efficiency necessary to compete in the EU's single market.

It said the investment burden for the public sector could also be lessened by transferring it to privatized utilities, relieving the strain on the public purse.

The EU is already at an advanced stage of negotiations with Poland, the Czech Republic, Hungary, Slovenia, Estonia along with the Mediterranean island of Cyprus. Talks with six other countries Slovakia, Latvia, Lithuania, Bulgaria, Romania and Malta only started in March and the EU still has to broach difficult issues like the environment.

The EU's Enlargement Commissioner has said that the environment, along with agriculture and the free movement of people, was expected to be one of the most difficult issues in the expansion talks.

### **10. Bulgaria Plans To Switch To Unleaded Gasoline By January 2001**

Bulgaria hopes to switch to unleaded gasoline next January, three years earlier than initially planned, according to a senior government official. "January 1 is the most realistic date for switching the most popular A-91 octane to A-91H unleaded," Deputy Environmental Minister Neno Dimov reportedly told a news conference.

Bulgaria's initial plans were to switch entirely to lead-free gasoline from January 2004.

Bulgaria is holding membership talks with the European Union which has tough environmental requirements. But the country's biggest oil refinery, Lukoil Neftochim Bourgas, majority owned by Russia's oil major Lukoil modernized its fuel production installations in March and is technically ready to switch to unleaded petrol. Now the refinery expects the government to lower excise taxes on unleaded fuel to make it cheaper than leaded, said the plant's technical and environmental safety division director Evtim Tsintsarski. More than half of the refinery's unleaded fuel is currently exported instead of sold domestically, Tsintsarski said. He did not specify volumes or export markets.

Bulgarians, who before the overthrow of the communist rule in 1989 would queue for up to 15 years to buy Soviet-made cars such as Lada and Moskvich, have recently seen the country flooded with second-hand vehicles from western Europe. Now the average age of the estimated 2.1-2.2 million cars in the country is over 15 years. The percentage of new cars is quite small but the share of unleaded petrol of the Bulgarian retail market in the first quarter of the year has grown to 33 percent.

**11. EU Issues Motorcycle Emissions Proposal**

The European Commission has finally

presented their proposal for a Directive to limit emissions from motorcycles. The proposal will amend Directive 97/24/EC, and includes emission limits for carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx), which should apply from 1 January 2003 for new vehicle types and from 2004 to all new vehicles. In a significant departure from current practice, one set of limit values is being proposed to apply to all motorcycles, eliminating the distinction between two and four-stroke engines.

The 2003 proposed new limit values represent reductions from 1999 of:

- 60% for hydrocarbons and for carbon monoxide for four-strokes
- 70% for hydrocarbons and 30% for carbon monoxide for two-strokes.

A second regulatory stage is envisaged to be applied from 1 January 2006. This second stage will be based on the new test cycle (WMTC) being developed by GRPE in Geneva, which is intended to be "more representative of real world emission behavior". For stage 2, the Commission intends to table a proposal covering test procedures and limit values to the European Parliament and the Council before the end of 2002.

The limit values are as follows:

Commission Proposal

Date	Class	Cycle	CO g/km	HC g/km	NOx g/km	TEC
2003/2004	All Motor-cycles	UDC Warm	5.5	1.2	0.3	1
	Petrol Tri-/Quadri-cycles		7	1.5	0.4	
	Diesel Tri-/Quadri-cycles		2	1	0.65	
2006/2007 [Indicative only]	≤150cc		2	0.8	0.2	2
	>150cc		2.0	0.3	0.1	3.

Technology (TEC)

1. DI &/or Ox. Cat for 2-stroke, Ox. Cat/Sec. Air for 4-stroke
2. DI + Ox. Cat
3. TWC

The proposal was delivered to the Parliament on July 11<sup>th</sup>; on the following day, Bernd Lange was appointed as rapporteur to take the proposal through the cooperation procedure. The first reading in the Parliament is unlikely before the end of this year.

## 12. Very Low Sulfur Petrol Introduced in the UK

BP Amoco has launched a new grade of petrol with a maximum sulphur content of 10 ppm and an octane rating of 95 to be sold in London. BP expect it to be available throughout the UK by the year-end.

### NORTH AMERICA

## 13. New Study Predicts Global Warming Effects to Be Widespread Across US

Warming of the global climate is likely to have substantial consequences around the United States in coming decades, including bumper crops in the heartland, chronic erosion of coasts, summer water shortages and winter floods in the West and a future New York City that steams in summer like present-day Atlanta. These are a few of the predictions made in the first thorough federal assessment of the possible effect on the country, region by region, of a warming trend that many scientists expect will characterize coming decades.<sup>3</sup>

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<sup>3</sup>"Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change", A Report of the National Assessment Synthesis Team, June

Temperatures nationwide rose about one degree in the 20th century, and the report estimated the potential effects of further warming by using a "business as usual" assumption, in which carbon dioxide levels continued to grow at the rate of recent years. At this pace, the average temperature in the country would rise 5 to 10 degrees in the next century, although the authors stressed that this was only one possibility. To put that in perspective, the world is 5 to 9 degrees warmer than in the last ice age, 18,000 to 20,000 years ago.

The study was ordered by Congress in 1990 to help lawmakers identify vulnerabilities and potential benefits of the warming trend. But it kicked into high gear only three years ago, when computer models grew sophisticated enough to analyze links between the atmosphere and oceans and local systems like crops and forests.

The report forecasts some profound changes, with many regions of the country seeing conditions shift to those of their present-day neighbors to the south.

In the mountains of the Pacific Northwest, rising stream temperatures are very likely to harm migrating salmon, the report said. In California, less snow in winter would lead to less runoff from melting snow in the late spring, reducing water supplies during the summer growing season. The Southwest would see rising precipitation that could cause shrubby forests to overtake desert landscapes. One of the most likely of all consequences from continued warming

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2000.

would be coastal erosion and destructive storm surges as sea level steadily rises. In Eastern cities, the summer heat index, combining humidity and temperature, is likely to rise, so that as New York City takes on Southern steaminess, Atlanta will see hot spells more typical of Houston.

The biggest benefits are likely to come from the positive effect of rising carbon dioxide concentrations on plants, which rely on the gas for photosynthesis. Using computer models of climate, crops and forest health, the study found that the country could see rising yields and falling prices for food and timber. The falling prices would be good for consumers but could hurt some timber companies and farmers as already tenuous profit margins shrink.

The composition of wild forests is likely to change, with some species that are considered hallmarks of particular regions disappearing. For example, the sugar maple, the New York state tree and an important species for tourism, is likely to vanish from all but the most northern parts of the state as its preferred colder climatic zone moves north.

Scientists from dozens of government agencies, universities, private groups and industries conducted the studies and more than 300 independent reviewers offered comments.

The report concludes that society, for the most part, will probably be able to adapt to many of the coming shifts, but that some natural systems -- alpine meadows, coral reefs, mangrove swamps and the like -- will be damaged or disappear because they are either hemmed in by man-made structures or geography or simply cannot keep pace with the rate of temperature change.

#### 14. Fuel Economy Becomes A Hot

### Topic Again

#### A. US Fuel Economy Improves But Only On Paper

A soon-to-be- released government report shows a slight increase in the fuel economy of family vehicles in the 2000 model year. But the rise is mostly thanks to a loophole that gives carmakers extra mileage credit for vehicles that can run on ethanol, even though virtually no one uses that fuel.

Ethanol is sold by only 108 of the nation's 178,000 service stations. Nonetheless, General Motors, Ford Motor and DaimlerChrysler are producing roughly 750,000 dual-fuel minivans, small pickup trucks and cars this year at an extra cost of up to \$300 each. These vehicles are counted by the government as getting roughly triple the gas mileage that they actually achieve, allowing manufacturers to sell more full-sized sport utilities and pickups while still meeting federal standards for average fuel economy.

The government report, produced by the National Highway Traffic Safety Administration, calculated that the average fuel economy for all new family vehicles sold in the 2000 model year would be 24.7 miles per gallon, **after including the special treatment of dual-fuel vehicles**. That is up slightly from 24.5 in the 1999 model year and the same as in the 1998 model year, but still well below a peak of 26.2 miles per gallon in the 1987 model year.

Without the benefit from the special treatment of ethanol, the overall number would be up very slightly from 1999, when many dual-fuel vehicles were also sold, and down from 1998, when automakers were just starting to build the dual-fuel vehicles.

The growing popularity of large sport utility

vehicles and pickup trucks that are far less fuel efficient than cars has lowered the average fuel economy of the nation's vehicles in recent years. Automakers have made the big vehicles a bit more fuel efficient for this model year. But there are so many of them being sold that they have dragged down the average.

The average fuel economy of new cars has inched up to 28.4 miles per gallon from 28.3 in the 1999 model year, the report said. But the average for light trucks -- sport utilities, pickup trucks and vans -- jumped to 21.2 miles per gallon from 20.7 a year earlier. Almost all of the automobiles being produced with the capacity to burn ethanol are minivans and small pickup trucks, like Ford Rangers with 3-liter engines and Dodge and Chrysler minivans with 3.3-liter engines, as automakers have struggled to comply with federal standards.

NHTSA officials reportedly estimate that labeling vehicles as capable of burning ethanol or gasoline had allowed Ford and DaimlerChrysler to increase the calculated average fuel economy of their sport utility vehicles and other so-called light trucks by about 0.8 miles per gallon in the 2000 model year. The benefit for G.M. is 0.4 miles per gallon in the current model year. G.M. has indicated that it plans to step up production.

The government's rules require each automaker to produce cars with a so-called corporate average fuel economy of at least 27.5 miles per gallon and light trucks with an average fuel economy of at least 20.7 miles per gallon. Gasoline prices have recently increased but over the last decade, adjusted for inflation, they have been among the lowest ever, and this has helped create demand for light trucks with poor gas mileage.

The giant Ford Excursion sport utility vehicle

and a growing number of full-size pickup trucks are not included in the fuel-economy averages at all, because they exceed the maximum weight that regulators set in the 1970's for consideration as a family vehicle. G.M. and Ford told regulators at the time that they could not envision selling family vehicles weighing as much as their current models do.

## **B. The Politics of Fuel Economy Is Shifting**

However, fuel economy has become a political issue again this year because of rising gasoline prices, the possibility of shortages of certain types of gasoline in the Midwest this summer and growing criticisms of large family vehicles by environmentalists and safety advocates.

Senator John McCain has used his position as chairman of the Senate Commerce Committee to order Congress's General Accounting Office to perform a broad review of American fuel-economy policies. At Senator McCain's request, the review is focused on the safety, environmental and energy conservation issues raised by the fuel-economy standards for sport utilities and other so-called light trucks -- standards that are more lenient than those applied to cars. A spokeswoman for the Commerce Committee, said today that the report should be finished by August.

The 12-year-old law that gives special treatment to automobiles that can burn ethanol or gasoline also requires the National Highway Traffic Safety Administration to prepare an extensive report of the legislation's effectiveness by the end of the government's current fiscal year, on Sept. 30. The law will make the fuel-economy calculations for dual-fuel vehicles less favorable for automakers in 2004, and manufacturers have already begun lobbying for an extension of

that deadline. The industry is counting on support for an extension of the law from the farm lobby.

Auto executives have called repeatedly for Congress to repeal the corporate average fuel economy rules (known as CAFÉ) and replace them with higher gasoline taxes, but there has been no enthusiasm in Washington for such a move.

The Republican majority in the House approved a transportation budget a few weeks ago that for the sixth year in a row, bans the spending of federal money to revise federal fuel-economy rules. House Democrats organized an effort to remove the ban but then backed away from introducing the necessary amendment, fearing an election-year split between environmentalists, who favor stricter standards, and labor unions, which worry that American automakers depend on big gas guzzlers for their profits.

The Senate has been more closely divided on the issue. Senator Slade Gorton, Republican of Washington, a state with no auto assembly plants and high gasoline prices, said that he hoped to do better than last year, when the Senate defeated a resolution calling for action by 55 to 40. "I'm convinced we'll get more votes than last year, and we've got a 50-50 chance of winning it," Senator Gorton said.

### **C. Senate Victory Jump Starts Fuel Economy Standards**

As pressure built over rising gasoline prices, especially in the Midwest, advocates for removing the CAFÉ-freeze rider had locked up enough Senate votes by last Friday that the vehicle manufacturers apparently decided they were going to lose if it came to a vote. So they worked out a deal instead. The language agreed on would not remove this year's CAFÉ freeze that went through in the House bill, but

would require DOT and the National Academy of Sciences to produce a study recommending appropriate CAFÉ standards by July 1, 2001. Environmentalists appear confident that this amendment will come out of the conference committee intact.

This agreement, when finalized by both the House and the Senate in the final DOT funding bill, would remove part of the rider that for the last five years has barred the agency from even studying the possibility of raising miles-per-gallon standards.

The Senate reached this agreement when it became apparent that the Gorton/Bryan/Feinstein effort to strike the anti-CAFÉ rider had achieved widespread support among Senators. In recent months, Senators heard from thousands of constituents who supported raising CAFÉ standards to save money, cut pollution and end dependence on foreign oil.

The Corporate Average Fuel Economy (CAFÉ) law is the most successful energy-saving law ever passed, saving three million barrels of oil each day by doubling car fuel economy.

The Senate rejected the usual arguments of the auto industry, notably that raising CAFÉ standards would result in less-safe automobiles. The opposite has proven true: safety technology has halved the highway fatality rate at the same time as CAFÉ has doubled fuel economy.

### **15. Court Sides With EPA on NOx Control Plan**

A federal court is allowing the government to implement a plan to reduce air pollution that drifts from the Midwest to the Northeast, the Environmental Protection Agency said Friday.

The regulation, designed to force more controls on coal-burning power plants, has been bitterly contested by states that contend the impact of traveling smog has been exaggerated and pollution controls to cut it back would cost too much. It also was challenged by utilities, manufacturers and the trucking industry. The ruling means that 19 states, all east of the Mississippi, now have four months to submit to the EPA plans for reducing nitrogen oxide, an ingredient in smog, by May 2003. Some of the states will have to impose tougher controls than others: Much of the traveling smog problem has been blamed on tall utility smokestacks in the Midwest, Ohio Valley and parts of the South.

EPA Administrator Carol Browner called Thursday's decision from the U.S. Court of Appeals for the District of Columbia "a major environmental victory for everyone living throughout the Eastern United States." Browner said the regulation was intended to reduce smog-related illnesses, including bronchitis and childhood asthma.

"It means that over a hundred million people will now breathe healthier air as the result of significant reductions in harmful emissions from the most polluting power plants throughout the region," she said in a written statement.

The EPA is letting states decide whether to crack down on power plant emissions or use some other method, such as attacking pollution from the exhausts of cars and trucks. But it says going after utilities will in many cases be the cheapest way for states to comply.

The court decision came in response to a request for reconsideration of a March decision by a three-judge panel. That panel had ruled in EPA's favor on rules for 19 of the 22 states that EPA identified as causing

downwind pollution problems.

The full appellate court upheld that earlier decision and lifted a stay that had blocked implementation of the request for nitrogen oxide-limiting plans.

The 19 states are Alabama, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia and West Virginia.

#### **16. EPA Accuses House of Tying To Gut Clean Air Effort**

U.S. Environmental Protection Agency Administrator Carol Browner blasted the House of Representatives for voting approval of what she termed "anti-environmental, anti-public health" measures aimed at the agency's tighter clean air agenda.

She backed up claims made earlier by EPA officials that a vote by the House on Wednesday to restrict the agency from identifying regions with high smog levels would threaten public health if it became law.

"This administration has made real progress protecting public health and the environment. But this House action takes the nation backward," Browner said in a statement.

House Republicans, along with 58 Democrats, won approval to block EPA from disclosing which communities in the nation fail to meet stricter smog standards adopted by the agency in 1997.

The measure was tacked on to a spending bill for veterans affairs and housing programs and won by a 226-199 vote.

Even though a federal appeals court has said

the EPA cannot enforce the new 1997 standard, it has allowed the agency to identify communities that violate it.

EPA is asking the U.S. Supreme Court to permit enforcement of the standard.

Supporters of the so-called "rider" to the spending bill said they moved against EPA to protect taxpayers from wasting money on air quality standards that have been "deemed legally unenforceable by a federal court."

"I think that it is ridiculous to make local governments waste money on standards that don't legally exist," said Representative John Linder, a Republican from Georgia.

Browner said the House measure, which is not law and still would have to be approved by the Senate before being presented for a presidential decision, is denying Americans vital information to protect their health.

"The vote by the House would make it impossible for EPA to provide millions of additional Americans in other parts of the country the same information (as currently given on major cities)," Browner said.

EPA also rebuked votes by the House to delay cleanups of PCB-contaminated sediments in rivers and lakes, develop cleanup plans for 20,000 polluted water bodies and delay new standards for drinking water with arsenic.

#### **17. SCAQMD Board Adopts Clean Vehicle Fleet Rules**

In a landmark vote, the South Coast Air Quality Management District Governing Board adopted the first in a series of regulations that will gradually shift the region's transit buses, trash trucks and other vehicles from diesel to clean fuels or low emissions technology.

The action follows a study by AQMD late last year, which showed that some 70% of the 1,400 in one million cancer risk from toxic air pollution in the area stems from diesel exhaust. Diesel vehicles also are a major source of the smog-forming nitrogen oxides.

The Board's action puts in place three of the eight clean fleet rules being developed by the District, namely Rules 1191, 1192 and 1193. These rules respectively cover light- and medium-duty vehicles, transit buses and public and private waste hauling trucks.

Under Rules 1192 and 1193, public transit agencies, cities and trash haulers under contract to public agencies will be required to purchase clean-fueled buses and trucks whenever they replace or add vehicles to their fleets. Clean fuels include compressed natural gas, liquefied natural gas, propane, methanol, electric batteries and fuel cells. Should manufacturers develop diesel trucks and buses certified by the state of California to be as low-polluting as clean-fueled models, AQMD pledged to amend the rules within 90 days to allow purchase of diesel vehicles too.

Rule 1191 will require government agencies in the region to purchase from among the cleaner cars, pickup trucks, vans and sport utility vehicles on the market. A wide variety of makes and models that generally run on gasoline and are available at no extra cost will be allowed under Rule 1191.

While the clean-fueled trucks and buses will cost more than current diesel models a number of public financing programs are in place to help local governments.

In addition, AQMD is working in Sacramento to support the Governor's proposal to make \$50 million available to fund purchases of cleaner school buses. Locally, AQMD is working to establish the Adopt-a-School Bus



program that Governing Board Chairman Burke called for earlier this year. One of the five additional clean fleet rules AQMD staff is developing would cover school buses.

## **18. Canada Taking Action on Vehicles and Fuels**

Transportation is the largest source of air pollution in Canadian cities. Over the last number of years, Canada has acted to ensure that Canadians have both cleaner vehicles and fuels.

Federal, provincial and territorial governments have put a large number of measures in place to reduce vehicle emissions. The most recent measures include:

- < vehicle inspection and maintenance programs in two provinces (British Columbia and Ontario),
- < vapor pressure limits for gasoline in most provinces,
- < implementation of new national vehicle emission standards for 1998 and subsequent model years,
- < federal regulations to reduce the sulphur content in diesel fuel, and
- < federal regulations to reduce the levels of sulphur and benzene in gasoline.

There is increased understanding of the adverse effects of air pollution on human health. It is one reason for the need to further reduce emissions, and to do this effectively, vehicles and fuels are being treated as an integrated system.

The new Canadian Environmental Protection Act consolidates authority to regulate fuels and emissions under a single Act. The new CEPA also includes new authorities to control fuels and emissions from agricultural and construction equipment, off-road vehicles, marine engines, as well as other equipment

such as lawn mowers.

On May 25th and 26th, 2000 a Vehicles and Fuels Workshop was held in Toronto launching the first multi stakeholder consultations to develop new measures to reduce pollution from vehicles and the fuels that power them. More than 150 health and environmental groups, the petroleum refining industry, automotive and engine manufacturers and the alternative fuels sector provided their advice and input.

For vehicles and engines, Environment Canada's approach is for Canadian standards to meet or exceed those in the United States. The United States Environmental Protection Agency (EPA) has set new standards for cars and light duty trucks, including sports utility vehicles (SUVs), to be phased in from model year 2004 to 2009.

The consultation process provided up-to-date information and the opportunity for parties to express their views on future requirements for vehicle emissions standards and fuel characteristics. A "Notice of Intent", a formal statement of the federal government's plans, will be published by the end of this year.

## **19. ARB Releases Proposed Risk Reduction Plan for Diesel PM Emissions**

The California Air Resources Board (ARB) has released its draft risk reduction plan that outlines strategies to require particulate matter (PM) traps on all new and most existing diesel engines in California. Diesel engines that are affected by the proposal include heavy-duty trucks and buses, construction equipment, passenger vehicles and trash haulers, generators, agricultural and marine engines.

The ARB estimates that about 27,000 tons of

diesel PM are emitted each year into California's air. The staff proposal calls for ARB to work with local and federal agencies, engine manufacturers, fuel providers and the public to develop additional emission standards to reduce diesel emissions by up to 90 percent from the 1.25 million diesel engines in the state.

The proposed plan calls for 12 control measures to be adopted within one to five years, with full implementation by 2010. Some of the strategies proposed in the plan consist of equipping all new diesel engines with PM traps, requiring low-sulfur diesel fuel, in-use emission testing, broader use of alternative fuels and providing funding to offset the cost of upgrading to cleaner alternative fuel engines. The plan also recommends retrofitting existing diesel engines with PM traps.

The ARB estimates the cost to range from \$10 to \$50 per horsepower for the retrofit. In addition, ARB will ensure that the clean diesel fuel needed to enable advanced emission control technology will be available.

In 1998 the ARB identified diesel particulate matter as a Toxic Air Contaminant, which lists the compound as a known human carcinogen. As part of the identification process, Cal/EPA's Office of Environmental Health Hazard Assessment, the state's toxicology agency, completed a health risk assessment which evaluated the potential of diesel PM to affect human health. The findings revealed that diesel PM can cause health problems ranging from respiratory illness, heart problems, asthma and cancer.

## **20. EPA Public Hearings On Trucks and Low Sulfur Diesel Fuel Completed**

The US EPA has completed its hearing

process regarding its proposals to substantially reduce NOx and PM from heavy duty vehicles and engines and to lower the sulfur content in diesel fuel. Testimony was received from 323 individuals or organizations with 273 expressing support. EPA will soon begin the process of evaluating and analyzing the comments received to date as well as any additional comments received by the August 14<sup>th</sup> deadline and still expects to submit the final report before the end of this year.

## **21. EPA Issues Mobile Source Air Toxics NPRM**

As required under a consent agreement EPA Administrator Browner signed a notice of proposed rulemaking (NPRM) regarding mobile source toxic emissions on July 14. A range of compounds known as hazardous air pollutants are emitted from motor vehicles and fuels and are known or suspected to have serious health impacts. The NPRM describes EPA's program to address emissions of hazardous air pollutants from mobile sources. More specifically, EPA looks at the various compounds that are emitted by motor vehicles and identify those compounds that should be considered Mobile Source Air Toxics (MSATs). The list contains 21 MSATs includes various volatile organic compounds (VOCs) as well as metal compounds and diesel exhaust. EPA then evaluate the effectiveness of current controls in reducing on-highway emissions of these MSATs. Its analysis shows that the programs EPA currently has in place, including the reformulated gasoline (RFG) program, national low emission vehicle (NLEV) program, Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements (Tier 2), and its recently proposed heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements (HD2007 rule), are expected to yield significant reductions of

mobile source air toxics. Between 1990 and 2020, these programs are expected to reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 75 percent or more. In addition, EPA expects to see on-highway diesel PM emission reductions of over 90 percent. Nonroad engines and equipment also contribute substantially to levels of MSATs emissions and have only in recent years been subject to emission standards. Since nonroad engines are not subject to the same stringent controls as on-highway vehicles, the reductions from these sources are more moderate than those for on-highway sources.

EPA then considers whether there are additional air toxics controls that should be put in place at this time to further reduce on-highway MSAT inventories. With regard to fuels-based controls, EPA is proposing a gasoline benzene control program that requires refiners to maintain the current levels of over-compliance with RFG and anti-dumping toxics requirements. Because the proposed standard for each refinery is the same as the 1997/8 average gasoline benzene level for that refinery, the proposed standards are expected to impose only negligible costs, if any. With regard to additional vehicle-based controls, EPA concludes that it is not appropriate at this time to propose more stringent standards than the technology forcing standards found in its recently adopted Tier 2 and recently proposed HD2007 rule standards.

Finally, because of continuing concerns about the potential future health impacts of exposure to the public of air toxics from the remaining emissions from mobile sources in the future, EPA proposes to continue its toxics related research activities, in conjunction with other activities currently being conducted by the Agency. These include the National Air

Toxics Activities (NATA) and the National Air Toxics Program: The Integrated Urban Strategy (UATS). Under this strategy, EPA will continue to improve its understanding of emissions inventories, assessments of exposure, and the need for and appropriateness of additional mobile source air toxics controls for on-highway and nonroad sources. Based on the information developed through this research, EPA will conduct a future rulemaking to determine whether additional mobile source air toxic controls should be adopted. This rulemaking would be completed no later than 2004.

In a related matter, EPA's latest draft of its review of diesel particulate toxicity is due to be released any day and is scheduled to be reviewed by the Clean Air Science Advisory Committee (CASAC) at a September meeting.

## 22. Mexican Gasoline Criticized

According to Professor Humberto Bravo, last June 30 the newspaper "REFORMA" published in an article "Endureceran medidas contra contaminacion" a few very important statements which by coincidence match with the long time recommendations made by the section of "Contaminacion ambiental del centro de ciencias de la atmosfera" and presented in the annual meeting of the AWMA.

These recommendations are :

- 1.-Distribution of adequate gasoline in the Mexico City metropolitan area.
- 2.-Recognize that the high content of sulfur in the gasoline distributed in Mexico city (500 ppm) and above 1000 ppm in the states outside of Mexico city has an effect on the efficiency of the catalytic converters and

decreases the durability of the electronic system OBD 2 .

3.- Lower the RVP for the existing gasoline because of the high altitude of Mexico city ( 2240 meters).

4. Control of the benzene content.

5. Eliminate MTBE from the gasoline.

6. Reduce the content of olefins and isoparaffins.

Finally the report recommends that if necessary Mexico should import adequate gasoline to be used in the Metropolitan Area of Mexico city, avoiding in this way the potential health damage that has been suffered by several million children since 1987.

### **23. Mexico Moving Forward On Vehicle Standards**

In June, Mexican car manufacturers and the government reached agreement in principle to initiate the phase in of OBD II technology on new cars. In 2001, 10% of all new cars will have the equipment installed and by 2005 it will rise to 100%.

Following this, starting in 2006, Tier 2 standards will begin to be phased in. In 2006, 10% of all new cars will comply and by 2009 it will rise to 100%.

Of course, the Tier 2 vehicles will require low sulfur gasoline; negotiations on this matter with PEMEX are expected to begin soon.

### **24. California Issues Report Evaluating Smog Check Program**

The Enhanced Inspection and Maintenance (I/M) program, known as Smog Check II in California, is achieving significant emission

reductions which are needed to meet health-based air quality standards according to a recently released report<sup>4</sup>.

#### **A. Major Findings**

Using roadside test data from nearly 9,000 vehicles, CARB estimates that the Enhanced I/M program achieved combined emission reductions of 40 tons per day (TPD) of hydrocarbons (HC) plus NO<sub>x</sub> in Summer 1999, compared to the SIP target of 110 TPD. Overall, the program achieved 36 percent of the expected emission reductions for 1999.

The reductions achieved fell short of the SIP target for three primary reasons: (1) more rigorous program elements have not been implemented because they are being phased in over a longer timeframe; (2) the SIP emission reduction target assumed that additional communities and vehicles would be subject to Enhanced I/M; and (3) legislative changes lessened the effectiveness of the Enhanced I/M program.

The current program in place today is *more effective* than the program in place in Summer 1999, achieving an estimated 65 TPD of HC plus NO<sub>x</sub> reductions, about 60 percent of the expected emission reductions compared to the same SIP target. This increase is due to the more rigorous NO<sub>x</sub> inspection criteria implemented in October 1999 (at the end of the program evaluation period).

#### **B. Improvements Can Bring Program Into Full Compliance.**

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<sup>4</sup>Evaluation of California's Enhanced Vehicle Inspection and Maintenance Program (Smog Check II), July 12, 2000, principal contact - Mr. Leon Vann, CARB

The report identifies a set of options for improving the Smog Check II program. The full combination of improvement options is needed to meet the SIP target in all Enhanced I/M areas of California in all years.

Based on ARB and BAR assessments, input from a public workshop, meetings with interested stakeholders, and written comments, several changes to increase the emission reductions from the program appear available. While not an exhaustive list of all possible options, the following are the most significant options that CARB expects would have direct, quantifiable emission reduction benefits:

- A more comprehensive check for evaporative system and liquid leaks;

- Sending more vehicles to Test-Only stations and/or higher performing Test and Repair stations;

- More stringent inspection standards;

- Loaded-mode testing for heavy-duty vehicles;

- Remote sensing;

- Extending the program to all eligible vehicles registered in a nonattainment region already subject to Smog Check II; and

- Repealing the rolling 30-year exemption, which is scheduled to begin in 2003.

**LATIN AMERICA**

**25. Winter Smog Chokes Chilean Capital**

As Chile slips into the southern hemisphere

winter, lines of coughing children and pensioners in hospitals grow longer. TV ads switch to flogging bronchial remedies and vitamin C, replacing beer spots aimed at slaking summer thirsts.

Santiago's pollution soars in winter as cooler temperatures press ozone - smog's main component - and suspended particles closer to the ground. Pollution makes residents' eyes sting and gives them a tongue-drying taste of dirt.

Making matters worse is Santiago's geographical location. Little wind reaches the city, which lies in a valley. With the Andes rising to the east and another range of coastal mountains to the west, the smog is, quite literally, trapped.

Due mainly to a cocktail of vehicle fumes and industry emissions that have mushroomed as Chile's economy has grown 7 percent per year in the last decade, Santiago has fought a long-standing but so far losing battle against smog.

Drugs stores do a roaring trade in surgical face masks during the winter, and schools are banned from holding physical education classes when air quality levels slump.

Ecologists say conditions are not improving despite annual drives to curtail smog. With industry gradually switching to cleaner-burning fuels such as natural gas, the finger of blame has turned to Santiago's 1 million cars and trucks.

Such is the desperation that cleanup ideas and inventions have begun to show eccentric streaks. Last month the city unveiled a 15-foot (five-meter) high chimney connected to an air-sucking "washing machine" that filters smog in water and spews out clean air onto the downtown streets. But critics say the

contraption is pure "hot air."

Bicycle lovers in Santiago have formed the "Furious Cyclists Movement" and stage monthly pedal pow wows, invading the streets of what they dub Santiasco - loosely translatable as Smogiago - to urge the government to build cycle paths.

President Ricardo Lagos, who took over the reins of this nation of 15 million people in March, faces a vote-losing option to rid the city of its No. 1 scourge: a wider ban on cars when pollution levels rise.

Bans are already in place on older gas guzzlers in the winter, restrictions that broaden under complicated formulas to affect more cars when pollution levels climb. Lagos is pondering extending the ban to cars with catalytic converters to promote more use of public transport, even though he faces a political backlash.

Meanwhile, when pollution levels hit critical levels recently, private cars were banned on six major roads, causing mayhem on side streets while leaving buses and taxis the run of the road on the city's six main boulevards. "The idea was to increase a 30-minute car drive to 60 minutes and decrease a 40-minute bus journey to 20 minutes," said Gianni Lopez, head of the Santiago office of the government's National Environment Commission (Conama).

Lopez hailed the ban as a success as 25 percent of car owners did not use their vehicles that day. But experts say Lagos has an uphill struggle to convince car owners to flag down a bus or ride the subway, especially without first upgrading the image and the reality of public transport.

Santiago has a slick state-run underground system known as the metro, but there are

only five lines, limiting its reach.

Some 10,000 private buses ply crisscross routes around the city, but constant dogfights to pick up passengers has handed the bus drivers a reputation as dangerous and reckless.

But subway expansion is costly - about \$500 million per line, or 0.6 percent of Chile's annual gross domestic product - so Lagos is left with no option but clamping down on cars to improve the air, even if that includes cleaner-running cars with catalytic converters.

In coming years, restricting cars with converters might not be enough. Experts say Chile might have to charge for the use of public roads.

For the moment, experts say the government must concentrate on improving public transport policy, which is uncoordinated at best and contradictory at worst. One district of the capital is reducing the number of lanes on major roads to discourage car use, while a neighboring district is building parking lots.

## ASIA-PACIFIC

### 26. Japan Still Undecided Regarding Diesel Regulations

The next stages of diesel regulations both in exhaust emissions and fuels have not yet been decided. It is, however, expected that the fuel limit will be decided within this year. The 50 ppm sulfur limit, which is the EURO4 standard, is considered an extremely important benchmark, but it is not yet fixed at this stage. Concerning the emission standards, Japan is considering changing the test cycles, which are currently steady state cycles to transient cycles. At this stage they are gathering driving data, so it will take at least one more year to fix the cycles.

Emission limits need to be decided together with test cycles which means it will take at least one year from now. Thus fuel limits and exhaust emission limits will be decided separately in timing.

Although it is not decided yet and it depends upon the vehicles category, 2005 will be the good guess for when the new requirements will go into effect.

Concerning the Japanese DPF committee, the interim report is expected to be issued in the beginning of August. It reflects the results of hearing from DPF manufacturers and some experiments. The report will discuss the technical merit and defects of each type of DPF, cost-benefit analysis, and what kind of measures the government should take to reduce particulate matter in the most cost effective way.

Another study group under the Japan Environment Agency, PM Risk Evaluation Investigation Committee, has released its first draft report in which they assessed various studies from all over the world on health effect of diesel emission. It concluded "we can say that reports strongly shows that diesel emissions are carcinogenic"

In the limited time available, they are not pursuing their own study but rather are assessing existing studies.

The New Long Term Regulations for diesel-powered vehicles, which is expected to take effect around 2005, will be PM focused rather than the traditional NOx emphasized regulations. Therefore, the Environment Agency needs to address the question of the toxicity of Diesel Particulate matter.

The kickoff meeting of PM Risk Evaluation Investigation Committee, which is the ad hoc advisory body for the Director-General of the

Air Quality Bureau, was held on June 27. While it did not made any decisions, discussion papers in the meeting included various animal test results conducted by United States EPA and California EPA. The Committee will issue an interim report around the end of August. Due to the short time remaining, the Committee needs to make decision based only on domestic and foreign research results which were conducted previously.

The Japanese EPA thinks at this point that "various test results show that there is strong implication that DEP has carcinogenicity" is enough for them to move the PM focused regulations.

In a related development, Ms. Yoriko Kawaguchi has been appointed as new Director-General of the Environment Agency. She is a former senior executive of Suntory, one of the biggest beverage companies in Japan. Formerly she worked for the Ministry of International Trade and Industry and her final post at MITI was Deputy Director-General for the Global Environment Affairs.

The central government of Japan will have a major restructuring on January 6, 2001. The Automotive Pollution Control Division will be "downgraded" to "Office". Further, the Ministry of Transport will merge with the Ministry of Construction and it will become the Ministry of Land and Transport.

## **27. Diesel Seminar Takes Place in China**

A Seminar on modern diesel engine technology and environmental protection was held recently by foreign auto and diesel engine producers in Beijing. The companies attending included Cummins, Bosch, DaimlerChrysler, Volvo, Caterpillar, Dana and Isuzu. The seminar was part of the Green

Diesel initiative launched by the producers in March. The initiative is designed to help China realize its development and environmental protection goals by introducing modern diesels's advantages and advocating the establishment of uniform performance-based emission regulations in the country.

**28. The Motor Vehicle Pollution Control Program of the Philippines**

Key motor vehicle related elements of the Air Quality Action Plan for the Philippines are summarized below.

**A. Unleaded Gasoline**

The new Clean Air Act has already resulted in the complete phase out of leaded gasoline in Metro Manila and no later than January 1, 2001 leaded gasoline should be eliminated throughout the remainder of the country. The Act also limits the aromatic content of unleaded gasoline to a maximum of 45% by volume and the benzene content to 4% by volume on January 1, 2000 and to 35% and 2% respectively by January 1, 2003. The Reid

Vapor Pressure will be limited to a maximum of 9 psi by January 1, 2003.

**B. Clean Diesel Fuel**

By January 1, 2001, the maximum sulfur content of automotive diesel fuel shall be limited to 0.20% by weight and the Cetane number to 48 and the Cetane index to 55. Not later than January 1, 2003, the maximum sulfur content shall be 0.05%.

**C. New Vehicle Standards**

**i. Current Vehicles**

The Department of Environment and Natural Resources has required that since January 1, 1997 all newly manufactured gasoline fueled vehicles including motorcycles and mopeds shall be designed to operate on unleaded gasoline. After January 1, 1997, all new light duty vehicles up to 3.5 tonsl gross vehicle weight, were required to comply with ECE regulation R15-04 standards as summarized below.

	CO (g/km)	HC + NO <sub>x</sub> (g/km)
Type I Test		
Reference Weight (kg)		
750	58	19.0
751 - 850	58	19.0
851 - 1020	58	19.0
1021 - 1250	67	20.5
1251 - 1470	76	22.0
1471 - 1700	85	23.5
1701 - 1930	93	25.0
1931 - 2150	101	26.5
2150	110	28.0
All vehicles [Type II Test]	Maximum concentration of CO at end of last urban cycle = 3.5%	



	CO (g/km)	HC + NO <sub>x</sub> (g/km)
All vehicles [Type II Test]	No crankcase emissions permitted	

The limits quoted are those for type approval. Production vehicles are permitted to exceed these figures by up to 20% for CO and for HC + NO<sub>x</sub> by 25%.

New Medium and Heavy Duty engines sold after January 1, 1997 must comply with the ECE Regulation 49-01 which contains the following limits.

CO (g/kWh)	HC (g/KWh)	NO <sub>x</sub> (g/KWh)
11.2	2.4	14.4

In addition, ECE Regulation 24.03 governing black smoke emissions from diesel engines will apply as summarized below.

Fuel evaporative emissions for spark ignition engines shall not exceed 2.0 grams per test.

Smoke Emission Limits Under Steady State Conditions	
Nominal Flow (liters/second)	Absorption Coefficient (m <sup>-1</sup> )
42	2.26
100	1.495
200	1.065
Opacity Under Free Acceleration Should Not Exceed the Approved Level by more than 0.5 m <sup>-1</sup> .	

For motorcycles, CO emissions at idle shall not exceed 4.5%

**ii. New Vehicles After January 1, 2003**

After January 1, 2003, the standards for new cars, light duty vehicles and heavy duty engines will be required to comply with European Union Directives 91/441, 93/59 and 91/542 (Step 1), respectively. These limits are summarized below.

Exhaust Emission Limits For Cars

CO (g/km)		HC + NO <sub>x</sub> (g/km)		PM* (g/km)	
Type Approval	Conformity of Production	Type Approval	Conformity of Production	Type Approval	Conformity of Production
2.72	3.16	0.97	1.13	0.14	0.18

Exhaust Emission Limits For Light Commercial Vehicles

Class Of Vehicle	CO		HC+NOX		PM*	
	Type Approval	Conformity of Production	Type Approval	Conformity of Production	Type Approval	Conformity of Production
Class 1 (<1250 Kg)	2.72	3.16	0.97	1.13	0.14	0.18
Class 2 (1251< >1700)	5.17	6	1.40	1.6	0.19	0.22
Class 3 (<1700 Kg)	6.9	8	1.7	2	0.25	0.29

\* Diesel Vehicles Only

Exhaust Emission Limits For Medium and Heavy Duty Engines

CO (g/kWh)		HC (g/KWh)		NOx (g/KWh)		PM (g/KWh)	
Type Approval	Conformity of Production	Type Approval	Conformity of Production	Type Approval	Conformity of Production	Type Approval	Conformity of Production
4.5	4.9	1.1	1.23	8	9	0.36**	0.4**

For engines of 85 kW or less, the limit value for particulate is increased by multiplying the value by 1.7.

Smoke Limits for these vehicles do not change.

ECE Regulation 40.01 for Exhaust Emission Limits for Motorcycles with 4-stroke Engines.

CO (g/km)	
Reference Weight R <sup>(1)</sup> (kg)	ECE 40.01 <sup>(2)</sup>
<100	17.5 {21}
100-300	(17.5+17.5(R-100)/200
{100-300}	(21+21(R-100))/200
>300	35 (42)
HC (g/km)	
Reference Weight R <sup>(1)</sup> (kg)	ECE 40.01 <sup>(2)</sup>

< 100	4.2(8)
100-300	$(4.2 + 1.8(R-100))/200$
{100-300}	$(6 + 2.4(R-100))/200$
>300	8 (9.4)

Notes: 1) Reference weight (R) - Motorcycle weight + 75 kg.

2) Limits are for type approval. Limits given in parenthesis ( ) apply to conformity of production.

ECE Regulation 40/40.01 for Exhaust Emission Limits for Motorcycles with 2-stroke Engines.

CO (g/km)	
Reference Weight R <sup>(1)</sup> (kg)	ECE40.01 <sup>(2)</sup>
<100	12.8 [16]
100 - 300	$(12.8 + 19.2(R-100))/200$
{100 - 300}	$[(16 + 24(R-100))/200]$
>300	32 [(40)]

  

HC (g/km)	
Reference Weight R <sup>(1)</sup> (kg)	ECE 40.01 <sup>(2)</sup>
< 100	8 [(10.4)]
100 - 300	$(8 + 4(R-100))/200$
{100 - 300}	$[(10.4 + 6.4(R-100))/200]$
>300	12 [(18.8)]

Notes: 1) Reference weight (R) = Motorcycle weight + 75 kg.

2) Limits are for type approval. Limits given in brackets [ ] apply to conformity of production.

ECE Regulation 47 for Exhaust Emission Limits for Mopeds

Vehicle type	2-Wheeled	3-Wheeled
Pollutant	CO HC g/km g/km	CO HC g/km g/km
Licensing Production	8.0 5.0 9.6 6.5	15.0 10.0 18.0 13.0

(Mopeds are vehicles of less than 400 kg equipped with an engine having a cylinder capacity of less than 50 cubic centimeters.)

The Type II Test Requirements (i.e., the idle test) remain at 4.5% CO.

#### D. In Use Vehicle Standards

A mandatory periodic emissions inspection program will be set up throughout the entire country. Gasoline fueled vehicles will initially be subject to the two speed idle test and diesel vehicles to the free acceleration test

For privately owned light duty vehicles up to 4.5 tons, the first inspection shall commence on the fourth registration year, be biennial until the 12<sup>th</sup> year and then annual thereafter.

Commercial, public utility and all other vehicles heavier than 4.5 tons will be inspected annually from the second to 4<sup>th</sup> registration year and semi annually thereafter.

For rebuilt or imported used vehicles, the first inspection shall commence on the first registration year.

Gasoline fueled vehicles registered prior to January 1, 1997 must emit no more than 4.5% CO and 800 ppm HC; new vehicles registered after this date must meet limits of 3.5%CO and 600 ppm HC. New vehicles registered on or after January 1, 2003 must meet limits of 0.5% CO and 100 ppm HC at low idle and 0.3% CO with Lambda reading between 1+/-0.03% at high idle.

Diesel fueled vehicles' smoke opacity should not exceed 2.5 m<sup>-1</sup> except turbocharged engines which can rise to 3.5 m<sup>-1</sup> or those tested at elevations of 1000 meters and above, 4.5 m<sup>-1</sup>.

Motorcycles registered for the first time on or after January 1, 1997 must meet a limit of

6.0% CO at idle.

Misfueling any vehicles labeled unleaded gasoline only with leaded gasoline is prohibited.

#### E. Imported Used or Rebuilt Motor Vehicles

Prior to first registration, any imported used or any rebuilt motor vehicles registered for the first time prior to December 31, 2002 shall meet limits of 3.5% CO and 500 ppm HC (spark ignition engines) or 2.5 m<sup>-1</sup> for diesels, except 3.5 for turbocharged. Vehicles registered for the first time on or after 1 January 2003 shall comply with limits of 0.5% CO and 100 ppm HC (spark ignition) or 2.5 (3.5) m<sup>-1</sup> (compression ignition). If the in use emission standard of the country of origin is more stringent than these maximum limits, it will supercede them.

### 29. South Korea Proposes To Tighten New Vehicle and Fuels Requirements

South Korea has proposed to significantly tighten emissions standards for new vehicles and to improve fuel quality. For gasoline fueled cars, they intend to phase in the California LEV standards beginning in 2002; similar LEV standards will be introduced for light trucks in 2003. A Cold Temperature CO standard, 6.3 g/km, will also be introduced for new cars starting in 2003. The Euro 3 standards, i.e., those which are introduced in Europe this year, will be introduced in Korea in 2003. As a result of these new requirements, Korea expects that catalysts on new gasoline fueled cars will be substantially more durable and that oxidation catalysts will be needed for new diesel cars for the first time. Some light duty diesel trucks may

require the use of particulate filters. Similarly it is expected that some heavy duty diesels may require the use of particulate filters with all others at least requiring an oxidation catalyst. Sulfur levels in both gasoline and diesel fuel will be reduced to 30 ppm and 50 ppm, respectively, by 2006.

The proposals are not considered controversial and are expected to be adopted by the end of July.

For light and heavy duty diesels, a further step, likely the Euro 4 standards, is expected to be proposed in the future, possibly to go into effect in 2007.

**Emission Standards For New Gasoline Vehicles (g/km)**

Vehicle Type	Date Of Implementation	Test	CO	NOx	Hydrocarbons	
					Exhaust	Evap (g/test)
Small Size Car <sup>5</sup>	1991 2/2	CVS-75 g/km	8	1.5	2.1	4
	1996 12/1		2.11	0.62	0.25	2
	2000 1/1		2.11	0.25	0.16	
	Proposed 2002 7/1 <sup>a</sup>		2.11	0.25	0.078	1
Passenger Car	1991 2/2	CVS-75	2.11	0.62	0.25	2
	1998 1/1		2.11	0.4	0.25	
	2000 1/1		2.11	0.25	0.16	
	Proposed 2002 7/1 <sup>a</sup>		2.11/2.61 <sup>b</sup>	0.12/0.19	0.047/0.056	1
Light Duty Truck <sup>6</sup>	1991 2/2	CVS-75	6.21	1.43	0.5	2
	1998 1/1		6.21	0.75 <sup>c</sup>	0.5	
			6.21	1.06 <sup>d</sup>	0.5	
	2000 1/1 <sup>c</sup>		2.75	0.25	0.24	
	2000 1/1 <sup>d</sup>		3.11	0.43	0.29	

<sup>5</sup>Less than 800 cc of Engine Displacement

<sup>6</sup>GVW < 3 tons

Vehicle Type	Date Of Implementation	Test	CO	NOx	Hydrocarbons	
					Exhaust	Evap (g/test)
	Proposed 2004 1/1 <sup>c</sup>		2.11	0.12	0.047	
	Proposed 2004 1/1 <sup>d</sup>		2.73	0.25	0.062	
Heavy Duty Vehicle	1992 2/2	13-Mode (g/kWh)	33.5	11.4	1.3	-
	2000 1/1		33.5	5.5	1.3	
	Proposed 2003 1/1		4.0	3.5	0.9	
Motor Cycle (50cc-125cc)	1991 1/1	Idling (%)	5.5	-	1.1/0.45 <sup>e</sup>	-
	1993 1/1		4.5	-	1.1/0.45 <sup>e</sup>	
	1996 1/1		4	-	0.70/0.40 <sup>e</sup>	
	2000 1/1	ECE R40	12.8	-	8.0/4.20 <sup>e</sup>	-

a = 2002 for all new models; 25% of others 2003; 50% in 2004; 75% in 2005; 100% in 2006

b = 5 years, 80,000 km/10 years, 160,000 km

c = Loaded Weight 1.7 tons or less or van capable of seating 15 persons or less.

d = All other light trucks

e = 2 stroke/4 stroke

**Emissions Standards For New Diesel Vehicles**

Vehicle Type	Date of Implementation	Test	CO	NOX	HC	PM	Smoke
Passenger Car	1991 2/2	6-Mode	980 ppm	850/450 <sup>7</sup>	670	-	50%
	1993 1/1	CVS-75 (g/km)	2.11	0.62	0.25	0.12	
	1996 1/1		2.11	0.62	0.25	0.08	
	1998 1/1		1.5	0.62	0.25	0.08	
	2000 1/1		1.2	0.62	0.25	0.05	

<sup>7</sup>Direct Injection/Indirect Injection

Vehicle Type	Date of Implementation	Test	CO	NOX	HC	PM	Smoke
	Proposed 2002 1/1 <sup>a</sup>		0.5	0.25	0.05	0.025	
Light Duty Truck <sup>8</sup>	1991 2/2	6-Mode	980 ppm	850/450	670	-	50%
	1993 1/1		980	750/350	670	-	40%
	1996 1/1	CVS-75	6.21	1.43	0.5	0.31	
	1996 1/1 <sup>9</sup>		2.11	1.4	0.25	0.14	
	2000 1/1		2.11	1.02	0.25	0.11	
	Proposed 2002 7/1 <sup>b</sup>		0.80	0.65	0.07	0.07	
	Proposed 2002 7/1 <sup>b</sup>		0.95	0.78	0.08	0.10	
Heavy Duty Vehicle	1991 2/2	6-Mode	980 ppm	850/450	670	-	50%
	1993 1/1			750/350		-	40%
	1996 1/1	13-Mode G/kWh	4.9	11	1.2	0.9	35%
	1998 1/1			9.0		0.5	25%
	2000 1/1			6.0		0.20	
	2002 1/1 <sup>10</sup>			6.0		0.15	
	Proposed 2003 1/1 2004 7/1 <sup>c</sup>	ESC	2.1	5.0	0.66	0.1	.8

A = 1/1/2002 for New Models; 1/1/2003 for all New Vehicles  
 B = 7/1/2002 for all New Models; 1/1/2004 for all New Vehicles  
 C = 1/1/2003 for all New Models; 7/1/2004 for all New Vehicles

<sup>8</sup>GVW < 3 tons

<sup>9</sup>GVW < 2 Tons

<sup>10</sup>Applies to all new heavy duty engines and all city buses.

**Emission Standards For New LPG Vehicles (g/km)**

Vehicle Type	Date Of Implementation	Test	CO	NOx	Exhaust Hydrocarbons
Passenger Car	1991 2/2	CVS-75	2.11	0.62	0.25
	1998 1/1		2.11	0.4	0.25
	2000 1/1		2.11	0.25	0.16
	Proposed 2002 7/1 <sup>a</sup>		2.11/2.61 <sup>b</sup>	0.25/0.37	0.078/0.097
Light Duty Truck <sup>11</sup>	1991 2/2	CVS-75	6.21	1.43	0.5
	1998 1/1		6.21	0.75 <sup>c</sup>	0.5
			6.21	1.06 <sup>d</sup>	0.5
	2000 1/1 <sup>c</sup>		2.75	0.25	0.24
	2000 1/1 <sup>d</sup>		3.11	0.43	0.29
	Proposed 2004 1/1 <sup>c</sup>		2.11	0.25	0.078
	Proposed 2004 1/1 <sup>d</sup>		2.73	0.44	0.099

a = 2002 for all New Models; 2003 for all New Vehicles

b = 5 years, 80,000 km/10 years, 160,000 km

c = Loaded Weight 1.7 tons or less or van capable of seating 15 persons or less.

d = All other light trucks

**Emission Standards For In Use Vehicles**

Fuel	Vehicle Type	Model Year	CO	HC	Smoke
Gasoline & LPG	Passenger Car	1987 12/31	4.5%	1200 ppm	
		1987 1/1 - 1999 12/31	1.2%	220 ppm	
		2000 1/1 -	1.2%	200 ppm	

<sup>11</sup>GVW < 3 tons



Fuel	Vehicle Type	Model Year	CO	HC	Smoke	
	Small Car, Light Duty Truck, Heavy Duty Vehicle	up to 1999 12/31	4.5%	1200 ppm		
		2000	A	1.2%		220 ppm
			B	4.5%		1200 ppm
Diesel	Passenger Car, Light Duty Truck	up to 1995 12/31	-	-	40%	
		1996 1/1 - 1997 12/31			35%	
		1998 1/1			30%	
	Heavy Duty Vehicle	up to 1992 12/31	-	-	40%	
		1993 1/1 - 1995 12/31			35%	
		1996 1/1 - 1997 12/31			30%	
		1998 1/1 - 1999 12/31 <sup>12</sup>			25%	
		2000 and later			25%	

A = Small Car & Light Duty Truck only  
 B = Heavy Duty Vehicle only

**Emission Warranty Period**

Fuel	Vehicle Type	Current	Proposed
Gasoline	Passenger Car	5 Years or 80,000 km	10 Years Or 160,000 km
	Small Car		5 Years or 80,000 km
	Light Duty Truck		
LPG	Passenger Car		10 Years or 160,000 km

<sup>12</sup>City buses only

Fuel	Vehicle Type	Current	Proposed
	Small Car, Light Duty Truck		5 Years or 80,000 km
Diesel	Passenger Car		
	Light Duty Truck		

Standards For Vehicle Fuels & Fuel Additives

Fuel	Constituent	Current	Proposal	
			2002	2006
Gasoline	Aromatics (%)	35	30	24
	Benzene (%)	2	1.5	0.8
	Lead (g/l)	0.013		
	Phosphorus (g/l)	0.0013		
	Oxygen (Wt.%)	1.3~2.3	1.0~2.3	1.0~2.3
	Vapor Pressure	Max 82	Max 70	Max 70
	Sulfur (ppm)	200	130	30
	Olefins (%)	23	18	10
	90% Boiling Point (° C)	175	175	150
Diesel	Sulphur (%)	0.05	0.043	0.005
	Residual Carbon 10%	0.15	0.15	0.10
	Specific Gravity 15°C kg/m <sup>3</sup>	-	815~845	same

**30. Hong Kong Decides To Stimulate Ultra Low Sulfur Diesel**

After months of debate, Hong Kong has

announced its decision to accelerate the introduction of ultra low sulfur diesel fuel (ULSD) with a maximum sulfur content of 50 ppm. The tax incentive (which will made ULSD cheaper than 0.05% S diesel) will be

available by July 7, 2000. ULSD is expected to be available at all stations soon thereafter.

The difference between 0.05 % S and ULSD will be 0.114 US\$ per liter. Th tax on 0.05% S diesel and ULSD will be 0.256 US\$/L and 0.142US\$/L, respectively.

Hong Kong authorities intend to maintain the 0.114 US\$/L difference until end of 2001.

**31. Hong Kong Stiffens Fines For Smoky Vehicles**

Hong Kong lawmakers have passed a resolution to raise fines on smoky vehicles in a long-awaited move to crack down on worsening air pollution.

The government motion raising the fixed penalty on smoky vehicles to HK\$1,000 (US\$128) from HK\$450 from December 2000 was passed by a large majority in the 60-member legislature.

However, an amendment by prominent environmentalist and legislator Christine Loh to stiffen the penalty further to HK\$5,000 was voted down. "If you consider the cost to society...how can HK\$1,000 be enough?" Loh said.

Secretary for the Environment and Food Lily

Yam, who tabled the government motion, promised heavier penalties for repeat offenders.

Air pollution has become progressively worse in this southern Chinese territory in the past year with choking haze sometimes restricting visibility to no more than two km (1.3 miles). The problem is widely blamed on the territory's large fleets of diesel-powered vehicles, such as buses, mini-vans and taxis.

The Asian Development Bank's outlook for 2000 released in April devoted a section to the pollution problem, saying it posed health risks and would hamper Hong Kong's efforts to become a regional high-tech hub able to attract talented foreign professionals.

**32. Recent Developments in China**

**A. China Air Quality Standards**

China recently modified its air quality standards for nitrogen dioxide and eliminated its standards for nitrogen oxides. Even the relaxed nitrogen dioxide standard is more stringent than the current US standard for this pollutant. (Us standards are summarized in the column to the right for comparison.) Only Beijing and Guangzhou routinely exceed the NO2 air quality standard at present.

		Chinese Air Quality Standards (mg/m <sup>3</sup> )			
		Class I	Class II	Class III	US
SO2	Annual Average	0.02	0.06	0.1	0.08
	Daily Average	0.05	0.15	0.25	0.365
	1-Hour	0.15	0.5	0.7	
TSP	Annual Average	0.08	0.2	0.3	
	Daily Average	0.12	0.3	0.5	
PM10	Annual Average	0.04	0.1	0.15	0.05
	Daily Average	0.05	0.15	0.25	0.15
PM2.5	Annual Average				0.15
	Daily Average				0.65
NO2	Annual Average	0.04	0.08 (.04)*	0.08	.100

	Daily Average	0.08	0.12 (.08)	0.12	
	1-Hour	0.12	0.24 (.24)	0.24	
CO	Daily Average	4	4	4	
	8-Hour				10
	1-Hour	10	10	10	40
O3	1-Hour	0.12	0.16	0.2	0.235
	8-Hour				0.157

\* Numbers in parentheses are previous standards.

**B. New Clean Air Law**

The new Clean Air Law has been adopted and will go into effect on September 1, 2000. It contains several provisions which are motor vehicle related, most of which SEPA is pleased with. Highlights include the following:

**Retrofit of in use cars** – SEPA is not happy with this provision which requires that if municipal EPBs want to require tighter standards for in use cars than applied at the time of manufacture (i.e., require retrofits), they must develop a plan and get the approval of the State Council. SEPA feels that this is a technical issue that should not be placed before the State Council (which is not a technical organization) but rather given to SEPA.

**Inspection and Maintenance Requirements** – SEPA has been given explicit responsibility to develop national regulations for I/M, including test procedures and standards for each type of vehicle. They will coordinate this regulation with MOT.

**Fuel Quality** – While not giving explicit authority to SEPA or any other organization, the law states that toxic and harmful substances such as benzene and sulfur should be reduced. SEPA intends to coordinate

with other Ministries such as the former MMI, the National Petrochemicals Office, the National Quality Office and others in addressing this issue.

**Operation of I/M Programs** – the Municipal and Provincial EPBs are authorized to operate the annual emissions I/M programs, in accordance with the policies set out in the SEPA regulations. The Ministry of Public Security will continue to be responsible for safety and for registering vehicles.

**Penalties and Enforcement** – SEPA is given the authority to enforce the new vehicle and engine standards. Any vehicle that is produced or imported which does not comply with the emissions standards could be taken by the government and destroyed and a fine equal to twice the economic benefit gained by the violator could be imposed. SEPA emphasized that this is the last resort and that lesser remedies such as Recall and repair would be attempted first. Also under this provision, counties are authorized to tax parking.

**National Standards** – SEPA is given broad authority to issue national standards for vehicles and vessels and other sources after considering

technical and economic conditions. If a stationary source is not regulated by SEPA, the Municipal EPB may do so but it must submit its regulation to SEPA. If a Municipal EPB wishes to impose tighter standards for vehicles or vessels than those adopted by SEPA, they must first get the approval of the State Council.

SEPA believes that the new law resolves the dispute regarding who has authority to issue vehicle standards in their favor. They have drafted a regulation that stipulates the administrative process for new vehicle regulations, identifying who is responsible for which activity and how they will carry out the responsibility. Under the draft, SEPA would have the responsibility for carrying out the Type Approval of new vehicles and publishing a list of all models that are in compliance with standards. Local authorities will be authorized to carry out tests on vehicles and if they don't comply they will be sent back for maintenance. If the vehicle cannot pass by the third attempt, the Public Security authorities will take away the vehicle registration.

When questioned about how SEPA with its very limited resources could actually perform this function, SEPA indicated that senior management said not to worry that the resources would be provided even if a new department needed to be created.

The regulation drafted by SEPA is being distributed to other agencies and ministries for comment. Based on the comments received, SEPA will make any revisions it considers necessary and will then submit it to the State Council for approval. They expect the State Council to take final action by the time the new law goes into effect on September 1.

### **C. Low Pollution Tax Reduction**

In conjunction with MOF, MMI and the National Tax Bureau, a new tax scheme has been developed whereby vehicles meeting EURO 2 standards will be eligible for a 30% tax reduction. Presently the "consumption" tax is 8% of the price of the vehicle. For a \$10,000 car, this is \$800. If such a car meets EURO 2 standards, the tax would only be \$560 or \$240 less.

#### **33. Nissan Diesel Announces Plans To Sell Hybrid Trucks in 2001/2**

Japanese truck maker Nissan Diesel Motor Co has announced it would begin installing in its trucks a new hybrid-power system using natural gas and an electric motor in the business year starting next April.

The truck maker said it would also consider potential requests to supply the technology to other truck makers but had no concrete plans to do so.

The medium-sized trucks will be equipped with a low-emission compressed natural gas (CNG) engine and a capacitor which stores electricity generated by energy from the brakes, and are expected to meet stricter emissions standards to take effect in 2005.

#### **34. Methanol Fuel Cells May Lower Japan Gasoline Needs**

Future gasoline demand in Japan could slip six percent from earlier forecasts if methanol is preferred to power fuel cell engines in vehicles, a Japanese think-tank said in a report which has just been released.

Japan's Institute of Energy Economics (IEE) said some seven percent of an estimated 59 million passenger cars likely to be on the

country's roads in 2020/2021 could be fuel-cell-powered. If those vehicles have methanol-powered fuel cell engines, it would result in annual gasoline demand of 56.4 million kiloliters (kl) against a previous estimate of 60 million kl, the IEE said.

### **35. Toyota Targets 15,000 Prius Hybrid Exports in 2001**

Toyota Motor Corp has announced that it is aiming to sell around 15,000 of its hybrid-engined Prius models overseas next year, with two-thirds of those sales in North America.

The Prius was the first hybrid-powered car - combining a traditional gasoline-powered engine and battery-driven motor - to be sold on the mass market when it made its debut in 1997. Sales of the Prius have, however, been limited to Japan, totaling 37,000 so far. Toyota recently launched the second-generation Prius for the Japanese market, targeting monthly sales of 1,500 units.

The new Prius has a top speed of 160 kilometers per hour (99 mph) compared with 140 kph (87 mph) for the previous version. It is capable of running for 29 km per liter (82 miles per gallon) under Japanese fuel efficiency tests, with ordinary drivers averaging about 20 km per liter.

The new model will hit the U.S. market next month, priced at around \$20,000, while sales in Europe will begin in September. Toyota has no plans as yet to take the Prius to other markets.

In a sign that automakers are increasingly backing the new technology, Honda Motor Co said last month it would begin selling a hybrid-powered version of its popular Civic compact in Japan next year. Honda began sales of its first hybrid vehicle, Insight, last

year in the United States and Japan. But as a two-seater coupe, its mass market appeal is limited.

And although Honda's latest announcement will mean Toyota will soon no longer have the hybrid passenger car market to itself, Toyota chief engineer Toshihiro Oi said the company was welcoming rival moves promoting the technology.

"For those of us working on hybrid cars, the question is how to get them to become mainstream vehicles. The more hybrids there are out on the road, the better," he told reporters. He added that while Honda will come out with the Civic, Toyota has no plans to stand still, noting that the company was working on a new hybrid system for bigger vehicles like minivans.

Ford Motor Co has said it will put a hybrid engine in its small sports utility the Escape, from 2003.

DaimlerChrysler has said if a U.S. government sponsored tax credit is approved, it could have a four-wheel drive version on sale within three years.

### **36. Progress on Lead Free Fuel in Indonesia ?**

In Indonesia, the largest remaining country in the world without lead free gasoline, a campaign is about to be launched. Funds have been provided by the US EPA to carry out a small study of the lead levels in the blood of children in Jakarta which will hopefully demonstrate the need for action. A direct comparison will be made with lead levels in the children in Bangkok where a companion study has just been started and where leaded gasoline was banned in 1996.

Indonesia's Mines and Energy Minister Susilo

Bambang Yudhoyono subsequently announced that the government planned to boost the use of unleaded gasoline in an effort to reduce pollution.

"The president (Abdurrahman Wahid) has given his approval to produce more unleaded gasoline in the country. Now we are seeking funds to finance the production of more unleaded gasoline at refineries," he told reporters in the West Java city of Merak after attending a seminar on the environment.

He said Indonesia was committed to reducing pollution in many of its big cities through a so-called "Blue Sky" project.

Yudhoyono said Indonesia needed at least \$190 million to produce more unleaded

gasoline to supply most polluted cities in the country.

"We will produce (unleaded gasoline) step by step. We are committed to reducing pollution. We expect to produce enough unleaded gasoline in 2003," he said.

An official from state oil company Pertamina said its Balongan refinery in West Java currently produced 4,700 kiloliters of lead-free gasoline per month.

Yudhoyono said the Cilacap refinery in Central Java would also be chosen to produce unleaded gasoline.