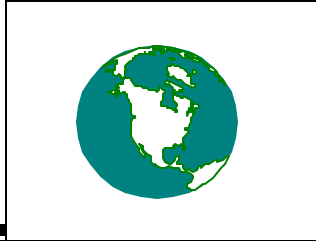


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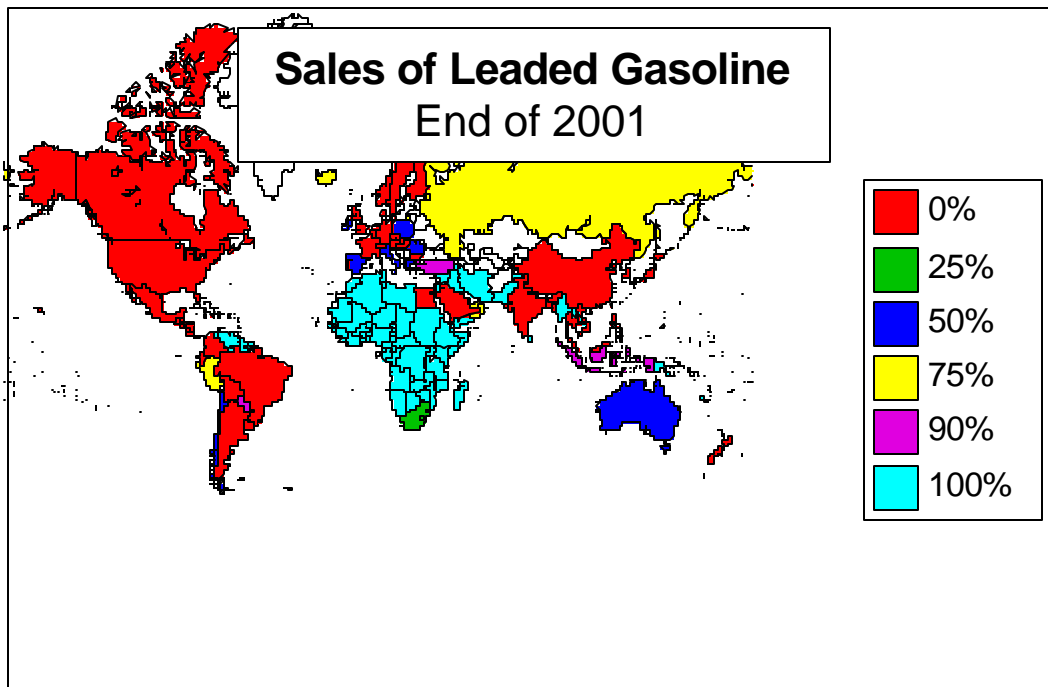


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EUROPE

1. Kyoto Deal Approved In Bonn

The Kyoto accord on global warming survived a last-minute scare after technical wrangles held up final United Nations approval of a political compromise to salvage the pact. It took delegates from the 180-odd countries present in Bonn just three minutes of a much-delayed plenary meeting to see the text formally adopted, as no nation raised objections and chairman Jan Pronk, the Dutch environment minister, brought down his gavel. Russia won special consideration - but no major concession - for an issue it had raised, ending a couple of days in which fears grew that the 11th-hour deal struck by ministers after all-night negotiations could founder on technical details.

There was applause and a sense of relief after a hot, tense day in the former West German capital that the Kyoto Protocol on cutting greenhouse gas emissions, agreed in principle four years ago, will now enter the final stretch of legal drafting. It will then be sent to national parliaments for ratification.

Although the United States, the world's biggest single emitter of greenhouse gases, has rejected the 1997 pact under President George W. Bush, U.S. delegates raised no objection.

"It is a major result," Pronk told the meeting after the deal was formally adopted. "Now we have to build on that."

If enough countries ratify it quickly, it could be in force by next year, forcing industrial nations to cut emissions of the industrial greenhouse gases blamed for global warming.

Ministers had passed a deal brokered by Pronk on the nod after a 24-hour bargaining

marathon that broke a deadlock between the European Union and Japan, Canada and Russia. But U.N. rules required a more rigorous process to formally adopt the text as a U.N. document. In the haste and fatigue of those marathon meetings, "inconsistencies" had crept in to documents which ministers left their officials to iron out, with nearly disastrous results.

"I was afraid that discussion of inconsistencies could lead to...an unravelling of the agreement," Pronk said. The Russian delegation in particular fought to put right what it saw was a discrepancy between what the weary ministers agreed to on Monday morning and what had been the consensus position on one key area. This dealt with how much it would be able to count its vast carbon-absorbing forests against Kyoto's requirements that it cut emissions of carbon dioxide into the atmosphere. As a compromise, the plenary meeting agreed that Russia could propose a technical amendment on these figures for discussion in technical committees. Other delegates said they would oppose it.

In the absence of the United States, the pact needs the support of most other industrial states and especially of the other biggest polluters, like Russia, the European Union and Japan, to come into force. Countries accounting for 55 percent of industrial nations' carbon dioxide emissions must ratify it. The United States accounts for about a third of the rich world's output.

2. Germany On Track For Low Sulfur Fuels

European oil companies are gearing up to a German tax break in favor of ultra-low sulphur fuels by buying and selling increasing volumes of cleaner diesel and petrol, traders with those firms have announced. From

November 1, motor fuels sold in Germany with a sulphur content higher than 50 parts per million (ppm) will be subject to an additional duty of three pfennigs per liter.

This pollution tax will be extended to fuels with sulphur content of more than 10ppm from January 1, 2003.

The extra cost of manufacturing ultra-low sulphur (50ppm) diesel was about three pfennigs per liter relative to the current 350ppm standard grade required under existing European Union legislation.

A diesel barge trader with an oil major active on the Amsterdam-Rotterdam-Antwerp (ARA) market said he had on Thursday sold a 2,000-tonne Rotterdam refinery barge of 50ppm to another major at \$25 a ton over July IPE gas oil futures. The trade, done at a price that was \$12 a ton above deal levels for 350ppm diesel, followed the sale of another 4,000 tons on Wednesday.

"I expect a total of about 10,000 tons of 50ppm diesel barges to be sold this week," the trader said. "That compares with about 50,000 tons of 350ppm diesel."

Traders said refiners were slowly but surely building up to the November 1 German deadline.

"It's starting slowly; Germany will start soon refreshing tanks for the change-over; people are trading it at the moment, testing out their storage facilities, and so on," one ARA trader said.

Ultra-low sulphur diesel (ULSD) and ultra-low sulphur petrol (ULSP) - also 50ppm sulphur - are already widely sold by petrol retailers in Britain, encouraged by government tax incentives.

ULSD is also widely available in the Netherlands, while ULSP is sold at petrol forecourts across Scandinavia.

Gasoline traders have seen growing interest in trading of ULSP on the northwest European cargo market over recent months. They expect barge trading to start in earnest this autumn.

3. Summer Heat Causes Smog Over Paris

Air pollution in Paris and its surroundings reached high levels in June as a heat wave created a smog cover over parts of France, prompting a crackdown on speedy car traffic in the congested region. The pollution was due to the combined effects of the heat, exhaust fumes from cars and emissions from industry.

Police said speed limits throughout the Ile de France region, which includes the capital and its suburbs, would be cut by 20 km (12 miles) per hour and strict controls would be carried out.

In a bid to persuade Parisians to leave their cars at home and use public transport, the city council announced parking in the streets would be free for residents.

Levels of ozone pollution beyond the safety threshold of 180 micrograms of ozone per cubic meter of air were recorded in several locations in the Ile de France region.

The areas around the northwestern cities of Rouen and Le Havre, the eastern city of Strasbourg and the southern cities of Avignon and Nimes were also affected. Local officials also announced anti-pollution measures similar to those in Paris.

Authorities issued warnings that children,

elderly people and asthmatics should refrain from any intense physical effort and avoid smoking or using certain chemicals such as solvents.

4. Tough Power Plant Rules Await Parliamentary Decision

A major piece of European Union air pollution legislation, setting tough emissions limits on power stations, hangs in the balance following the failure of a EU officials to finalize the law in initial discussions. The talks followed a disagreement over the final shape of the legislation between the European Parliament, which has consistently pushed to make the laws tougher, and national governments.

The Parliament will soon vote again on the draft legislation. If the compromise on the table is rejected, the law, which has been under discussion for the last two years, will fall.

But EU officials said they expected the assembly to approve the package - aimed primarily at cutting acid rain and smog - despite misgivings that the latest draft gives too many concessions to older, dirtier plants. The package consists of limits for large combustion plants for three pollutants - sulphur dioxide (SO₂), nitrogen oxides (NO_x), and dust; and a separate law setting air quality standards for each EU country, specifying maximum allowable levels for SO₂, NO_x, volatile organic compounds and ammonia.

The main problem for the parliament has been an amendment allowing older, mostly coal-fired power stations exemptions from the rules if they are only used to supply power at peak times.

This would mostly benefit power stations in Britain, but also some in Spain, Portugal and

Finland.

5. Belgian EU Presidency Will Push For Energy Tax

Belgium will push to harmonize energy taxes across the European Union when it takes over the rotating six-month presidency of the bloc next month, its energy minister has announce. Belgium, one of the leading advocates for deeper European political integration, will push the idea for harmonized energy tax levels, despite reservations from more Eurosceptic nations such as Britain, Belgian Energy Minister Olivier Deleuze said.

Deleuze said Belgium would carry on diplomatic efforts started by the Swedes, who relinquished the EU presidency at the end of June, to get the unanimous agreement between the 15 EU countries, which is required for changes to EU tax policy.

The EU's executive Commission proposed setting minimum EU tax levels on energy products such as coal, gas and electricity in 1997. Minimum tax on oil duties already exist. But the draft legislation hit deadlock as national governments - particularly Spain and Britain - refused to relinquish their sovereign right to set taxes.

Sweden failed to makes substantive progress on the issue and the legislation was again rejected by finance ministers when they last met earlier in June.

But Belgium hopes to create a framework law that sets the legal structure for harmonizing taxes without actually setting tax rates. The Swedish presidency had already been working on this idea. Once the law was in place, groups of countries could push ahead with harmonization while others could opt out.

The energy tax is seen by many as a key

policy for reducing greenhouse gases blamed for causing global warming and harmonizing them within the EU is seen as essential to prevent unfair competition between member states.

6. German Power Plants Said To Meet Emissions Reduction Targets

German power plants since 1990 cut carbon dioxide (CO₂) emissions by nearly eight percent, showing they were serious about global climate protection goals, electricity industry body VDEW has announced.

German production of power from coal, oil and gas rose by five percent in the period under review, a VDEW statement said, citing latest surveys. But their annual emissions of CO₂ - thought to contribute to global warming - during that time dropped to 267 million tons from 289 million, it added.

The German power industry in 1996 had pledged to reduce annual CO₂ emissions by 12 percent to 255 million tons by the year 2015. VDEW president Guenther Marquis said the reduction by 22 million tons in the 1990s showed that power companies were keeping their earlier promises.

This was also demonstrated by the specific CO₂ emissions savings per kilowatt hour - these dropped by 13 percent to 0.58 kilogram per kWh in the period under review, VDEW said.

VDEW said new plant constructions, higher efficiency rates, and the increased usage of gas with lower specific CO₂ emissions had contributed to these savings. Other factors were the expansion of renewable energy sources and combined heat and power (CHP) plants in Germany.

Nuclear energy currently helps save 160

million tons of CO₂ emissions annually, as these would be incurred if the third of German power output they contribute was produced at plants based on fossil fuel usage, VDEW said. Industry and government have agreed to phase out Germany's nuclear power plants by the mid-2020s.

7. EU Environment Agency Lets in Eastern Members

Six countries, mostly former communist eastern European states, joined the European Union's environment agency - the first time an EU body has taken on EU candidates as full members. The first to join the European Environment Agency (EEA) are Bulgaria, Latvia, Slovenia, Slovakia, Malta and Cyprus, the agency said in a statement. The other seven candidate countries are expected to join in the coming months.

According to rules adapted earlier this year, candidate countries may join the EEA after ratifying the agency's membership agreements.

The agency, which collects and publishes data about the state of Europe's environment, has said in the past that eastern Europe has a wealth of natural habitats which could be under threat from future economic growth.

"As these nations move into the European mainstream, the great challenge is to ensure the continued protection and enhancement of their rich natural heritage and to help them avoid certain insensitive types of development," EEA Executive Director Domingo Jimenez-Beltran said.

Enlargement will put environmentally sensitive areas such as the Danube valley, the Black Sea and the Mediterranean higher up on the EEA's agenda than in the past, the agency said.

Frontrunners among the 13 candidate countries could join the 15-nation bloc by 2004.

8. Greens Reclaim Paris Highway

French Greens have symbolically renamed Paris' riverside motorway - named after the late President Georges Pompidou - in a fresh strike in the war between the city's cyclists and the motor car. To the sound of Brazilian samba music, Environment Minister Yves Cochet and Green Party official Denis Baupin unveiled a plaque dubbing the road, which runs beside the river Seine, "Velorution Quay". The name - a pun on revolution and velo, the French for bicycle - was chosen by a Green Party website vote.

"The name chosen is a nickname so that people cannot say we have wiped out the memory of Georges Pompidou," Baupin said. "This way, (Pompidou's) name will be associated with a riverside walk for those who want to enjoy the banks of the Seine rather than with an urban motorway."

A proposal to officially rename the road to mark its month-long summertime closure to cars was dropped amid a storm of controversy as conservatives and Paris's Socialist Mayor Bertrand Delanoë rallied to defend the current name, "Georges Pompidou Way".

The young Greens, who had strewn the two-lane, four-km (2.5-mile) road with sunflowers for the naming ceremony, said in a statement they had named a nearby footbridge "Le Pont des Poissons qui Chantent" - "The Bridge of the Singing Fish".

Earlier suggestions for renaming Georges Pompidou Way, which is closed to cars and used by cyclists, rollerbladers and strollers most Sundays, included "Former Traffic Jam

Quay" or "Lovers' Alley".

The Greens have long denounced the busy, often noisy expressway - built during Pompidou's 1969-1974 presidency - as a scar on the elegant face of the capital.

9. Germany's Greenhouse Record Comes Under Criticism

Boasting that it has cut its carbon dioxide (CO₂) emissions by 18 percent in the last decade, Germany wants the world to be more aggressive in the crusade to stop global warming by reducing the output of deadly greenhouse gases. But a close look at the record shows, at best, a mixed performance.

For example, emissions of lethal gases in the populous and heavily industrialized western three-quarters of Germany are actually up by just under one percent in the last decade. It is only thanks to the massive collapse of industry in formerly communist eastern Germany that followed unification in 1990 that CO₂ output is down nationwide by 18 percent since then.

"Germany needs to get off its high horse and start taking stronger steps to reduce its emissions," said Michael Mueller, a member of parliament in Chancellor Gerhard Schroeder's Social Democrats and a leading voice on environmental issues. "Without the good fortune of unification and the shutdown of heavily polluting industries in the eastern states, Germany's position would be far worse," he added.

Mueller points out that Germany alone has three times as many cars as all of Africa. "Behind the scenes, industry exerts enormous pressure in Germany to thwart any bolder steps to protect the environment," Mueller said. "We should stop acting like a world leader because we really aren't."

German Environment Minister Juergen Tritten cites a recent study, commissioned by his ministry, that found Germany was on track to meet a target of cutting emissions by 25 percent by 2005 from 1990 levels. CO2 output fell by 180 million tonnes since 1990.

Tritten was one of dozens of ministers battling at this month's U.N. conference in Bonn to salvage the Kyoto accord on global warming. European ministers are leading efforts to enforce mandatory cuts on greenhouse gas emissions by industrial states.

The free market forces that swept quickly across East Germany following the collapse of the Berlin Wall forced the antiquated, inefficient and heavily polluting eastern German industries behind the Iron Curtain out of business. In grimy industrial towns such as Bitterfeld and Wolfen, south of Berlin, flocks of geese and other birds that had avoided the filthy region of chemical, film and coal plants soon returned to the skies for the first time since the 19th century.

While it is indisputable that big strides to clean the air have been made in western factory towns such as Ludwigshafen on the Rhine, Dortmund in the Ruhr area and car-making Stuttgart, pollution levels were still climbing through the mid-1990s.

Germany has pointed to its decline in CO2 in pushing other nations - especially its key trade rivals, the United States and Japan - to adopt the pact agreed in 1997 in Kyoto, Japan, calling for leading countries to reduce output by an average of about five percent from 1990 levels by 2012.

"Germany has become the country that is setting an example for the rest of the European Union," said Trittin. The minister said the government was working hard to promote renewable energy and that natural

gas would be used more, and coal less, in the years ahead. Germany leads the world in using clean or renewable energy. It has 9,400 land-based wind turbines that produce about 6,100 megawatts of power each year. But that meets just 2.5 percent of Germany's energy needs.

Britain was the only other country lauded in a report prepared by the Fraunhofer Institute and the Berlin-based DIW institute for economic research.

Britain cut its CO2 output by 12 percent, or by 90 million metric tonnes, in the decade to 2000 compared to Germany's 180 million. Trittin said Europe as a whole managed to cut only a total of 100 million metric tonnes in the decade to 2000.

The institutes' report nevertheless noted that the German government still had a lot to do to "strengthen its efforts to promote climate protection policies" in coming years if its goals are to be achieved. It chided Trittin's government for "deficiencies" in its policies on transportation, energy and taxation, adding that German industry needed better incentives to save energy.

Beneath the "green" surface - Germans willingly sort their trash into a half dozen different receptacles and use recycled paper for government stationery - there are clear limits on how far people will go to protect the environment. They drive their powerful cars at full throttle on packed motorways at gas-guzzling - and legal - speeds sometimes exceeding even 250 km/h (150 mph). Any attempt to introduce any sort of speed limit results in strong opposition

Mueller of the SPD notes that in recent years cars in Germany have been getting bigger and faster rather than smaller. Car air conditioners are in vogue even though there are only a

handful of truly hot days each year. And the same Germans who profess a deep love for their forests will also rise up in mass angry protest whenever the government has pushed out an incremental petrol tax increase.

10. Statoil Cleans Up Its Ships To Offset Refinery NOx Emissions

Norwegian energy firm Statoil said that savings in nitrogen oxide (NOx) from two new low-emitting ships would allow it to meet its NOx emissions reduction targets from one new power station. "We've been given permission to credit these NOx reductions against land-based projects," according to Knut Barland, vice-president for environment at Statoil. "And the kind of reduction we'd be getting on these ships would meet the NOx emission reduction target for one of these (planned) power plants."

The North Sea supply ships are small compared to cargo ships, but are so powerful they can be used to drag around oil rigs. They are usually so thirsty for diesel that they pump out as much NOx pollution each day as several thousand cars. But by designing each of them to run on Liquefied Natural Gas (LNG), gas that has been super-cooled until it condenses as liquid, NOx emissions from the two ships can be cut by 85 percent or 420 tonnes a year.

"That means one ship is equivalent to half the (NOx) emissions from a gas-fired power station," said Aksel Skjervheim of Naturgass Vest, which will provide the ships with their super-cooled fuel.

Statoil's Barland said that the government had given it a unique permission to credit the NOx reduction against land-based emissions, which could be from any one of five projects including two controversial 400 megawatt gas-fired power stations Statoil is involved in.

He said the power plants, one at Kaarstoe and one at Kollsnes near Bergen, were planned by a joint venture between Statoil, Norsk Hydro and Statkraft.

They are not controversial because of their NOx emissions, but because of their carbon dioxide (CO2) emissions. "We've been granted permission for the CO2 as long as we comply with Kyoto, but keeping the NOx down to the five parts per million (ppm) limit (specified by the government) could be very expensive," said Barland.

Norway imposes a five ppm limit on NOx emissions in some regions aimed at curbing acid rain.

"Constructing a NOx treatment plant would be a very expensive and very old-fashioned way, and therefore we've been given the opportunity of finding a third party solution," he said.

The shipping NOx offset deal works out comparatively cheaply. The two high-specification ships will cost Statoil an extra nine million Norwegian crowns per year to run, compared to conventional diesel-powered ships. But when converted into NOx credits, they would allow Statoil to cut emissions at a cost of 22 crowns per kilogram (kg), compared to 30-40 crowns per kg by building NOx treatment into a new power plant.

While this approach to emissions might help overcome the NOx hurdle for the Kaarstoe and Kollsnes plants, the project might yet stumble on CO2 limits. "We could buy CO2 emissions permits, but there's still a lot of political uncertainty over the cost and that is something we're having to consider very carefully," said Barland. He said much would depend on Kyoto's final mechanism for CO2 emissions trading and the extent to which

Norway adopted the measures.

Barland said he hoped the cost of future LNG-powered ships would fall as more LNG filling-stations were built around Norway's coast, and shipyards gained the right expertise. To date only one LNG-powered ship has been built, a Norwegian fjord ferry, which runs on fuel from Norway's only LNG filling station, the Aga-owned 15,000 tonne per year (tpy) mini-LNG plant at Tjeldbergodden.

Naturgass Vest, in which Statoil is a partner, hopes to build Norway's second mini-LNG plant of 30-40,000 tpy at Kollsnes and later on another near Stavanger.

"That will make LNG-powered coastal shipping possible in Norway," said Barland. "Next time we issue a contract, we hope LNG will be competitive in its own right."

NORTH AMERICA

11. NAS Report Says Global Warming Is Real and Worsening

A panel of top American scientists declared in early June that global warming is a real problem and is getting worse. In a much-anticipated report from the National Academy of Sciences, 11 leading atmospheric scientists, including previous skeptics about global warming, reaffirmed the mainstream scientific view that the earth's atmosphere is getting warmer and that human activity is largely responsible.

"Greenhouse gases are accumulating in earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise," the report said.

"Temperatures are, in fact, rising."

The report was requested by the White House last month in anticipation of an international meeting on global warming in Bonn in July but arrived just before President Bush left for Europe, a trip that included talks on global warming with leaders of the 15 European Union countries in Goteborg, Sweden.

In the White House's first official acknowledgment of the academy's conclusions, Condoleezza Rice, Mr. Bush's national security adviser, told reporters, "This is a president who takes extremely seriously what we do know about climate change, which is essentially that there is warming taking place."

Mr. Bush and many in his cabinet, who discussed the subject at length prior to the President's trip, have been trying to hammer out a proposal on limiting the pollutants that cause global warming.

"A cabinet-level working group is still working on what it wishes to say to the president before we go to Europe," Ms. Rice said.

Without being specific, Ms. Rice said Mr. Bush was being guided by certain principles in formulating a proposal.

"One would want to be certain that developing countries were accounted for in some way, that technology and science really ought to be important parts of this answer, that we cannot do something that damages the American economy or other economies because growth is also important," she said.

In response to critics who have suggested that Mr. Bush is ignoring an issue of mounting international concern, Ms. Rice portrayed the group as feverishly committed to educating itself and coming up with a proposal.

"It has been a matter of bringing up to speed

some of the highest-ranking people in this government," she said. "I would dare say — dare challenge you to find a situation in which you've had so many high-ranking people sitting there week after week after week, understanding the challenge that we face in global climate change, everybody from the vice president, the secretary of state, the secretary of interior, secretary of agriculture. It has been quite something to see all of these people grappling with the issue."

In an indication of the headwind that Mr. Bush was sailing into in Europe, the journal *Science*, published by an American scientific organization, recently carried an open letter signed by 16 prestigious scientific panels in countries around the world calling for "prompt action" to reduce the gases like carbon dioxide that trap heat like in a greenhouse.

The increase in temperatures, the editorial said, "will be accompanied by rising sea levels, more intense precipitation events in some countries and increased risk of drought in others and adverse effects on agriculture, health and water balance."

It continued, "We urge everyone — individuals, businesses and governments — to take prompt action to reduce emissions of greenhouse gases."

The NAS report reflects the increasing certainty of the scientific community that the warming of the last 50 years is probably because of the increase in greenhouse gas concentrations. The panel said the degree of confidence in this conclusion was "higher today than it was 10 or even 5 years ago."

"Human-induced warming and associated sea level rises are expected to continue through the 21st century," it said. And it said that "national policy decisions made now and in the longer-term future will influence the

extent of any damage suffered by vulnerable human populations and ecosystems later in this century."

The report was written by 11 atmospheric scientists who are members of the National Academy of Sciences. The authors included Dr. Richard S. Lindzen, a meteorologist at the Massachusetts Institute of Technology, who for years has expressed skepticism about some of the more dire predictions of other climate scientists about the significance of human-caused warming.

The report was requested on May 11 in a letter to Dr. Bruce Alberts, the president of the National Academy of Sciences, from John M. Bridgeland, deputy assistant to the president for domestic policy, and Gary Edson, deputy assistant to the president for international economic affairs.

Initially, the White House asked two questions of the academy: What are the greatest strengths and weaknesses in the science pointing to human-caused warming? And, are there significant differences between the full scientific analysis completed recently by the Intergovernmental Panel on Climate Change, sponsored by the United Nations, and the final executive summary?

There have been three assessments of global warming by the international panel since 1990, and each has drawn a more conclusive picture than the last of the link between human activities and the prospects for significant harm to agriculture, ecosystems and coastlines.

Environmentalists said the report should prod President George W. Bush to change his energy policy and focus on addressing climate change. Bush last month proposed a national energy policy heavy on new exploration efforts, including a much disliked

plan to open part of the Arctic National Wildlife Refuge to oil drilling.

White House spokesman Ari Fleischer said the National Academy of Sciences study left unclear whether greenhouse gases were contributing to warming. "Yes, the temperature is rising. It's unclear about what has caused it and what the best solutions could be. And that's what the president will now begin to increase focus on," he said.

Fleischer said the report did not rule out the possibility that some significant part of the change is a result of natural variability. Some experts believe heat or magnetism from the sun are the main cause of warming trends.

12. US Carbon Dioxide Emissions Rose 2.7 Percent In 2000

U.S. carbon dioxide emissions from burning fossil fuels, the emissions blamed for causing global warming, rose by a robust 2.7 percent in 2000, according to preliminary data released by the Department of Energy's Energy Information Administration.

EIA termed the emissions increase in energy-related carbon dioxide emissions as a "large growth" attributable to a return to normal weather, decreased hydroelectric power generation that was replaced by fossil fuels and strong economic growth.

"Strong economic growth at 5 percent represents the highest annual growth rate experienced during the 1992-2000 economic expansion," the EIA said.

Carbon dioxide emissions account for more than 80 percent of U.S. greenhouse gas emissions and are considered a good indicator of the change that can be expected in the nation's total greenhouse gas emission

levels, EIA said.

13. Jeffords Takes Over Environment Committee

Sen. James Jeffords of Vermont, who gave Democrats control of the Senate last month when he defected from the Republicans, became chairman of the Senate Environment and Public Works Committee, vowing to challenge President George W. Bush's record on environmental protection.

Jeffords promised to challenge Bush on a number of recent environmental rollbacks, ranging from rejecting a proposed treaty to combat global warming to breaking a campaign vow to try to impose mandatory emissions reductions for carbon dioxide at electrical power plants. Jeffords, a longtime advocate for tougher clean-air standards, has also opposed a key component of Bush's energy plan - drilling for oil and natural gas in Alaska's Arctic National Wildlife Refuge.

Jeffords, who has often been at odds with Bush, had been widely expected to get the chairmanship of the environment panel since he left the Republican Party on June 5, handing Democrats a one-seat margin in the chamber. Jeffords was formally approved for the post by the 50-member Senate Democratic Caucus. It did so in ratifying a proposed committee realignment in the new Democratic-led Senate.

In March, shortly after Bush abandoned his campaign pledge to seek to impose mandatory emission reductions for carbon dioxide at electrical power plants, Jeffords joined Sen. Patrick Leahy, a Vermont Democrat, in introducing legislation that would require such cutbacks.

As environment committee chairman, Jeffords will be able to call a hearing on the

bill. He said he hoped to do so before the August congressional recess.

14. Fuel Cell Electricity to be Encouraged In California

A new public/private collaborative seeking to reduce the demand on California's electrical grid and existing power plants by encouraging commercialization of fuel cells, held its first organizational meeting at Cal/EPA headquarters in Sacramento. A series of preparatory meetings were organized by the governor's Office of Planning and Research.

At the kickoff, S. David Freeman, Governor Gray Davis' senior energy advisor, stressed to the group, "Previously the benefits of fuel cell technology were not cost effective. But with the present price of electricity and unreliability of service, they are now a very attractive alternative. The benefits of fuel cell technology are very much in line with our state's economic and environmental concerns. We can and should usher in a new era of ecology and source diversification through this renewable energy." Freeman challenged the group of government officials to move fuel cell technology out of the lab and into the market place.

The collaborative advocates fuel cells as an environmentally friendly and economically sound choice to back-up generators and other stationary power production needs, including residential, commercial, institutional, and industrial applications. Fuel cells use a chemical process to produce reliable and stable electricity with little harmful emissions. Some varieties of the technology produce only pure water as a byproduct.

The collaborative's members and advisory group represent a broad spectrum of organizations: California state government agencies, federal government agencies; local

government agencies, the National Fuel Cell Research Center (NFCRC) located at the University of California-Irvine, and a variety of private entities. Near term goals include the coordination of interested parties and the facilitation of early implementation of units to serve as demonstrations of feasibility.

15. Alaska To Regulate Pollution From Cruise Ships

Alaska will be the first U.S. state to regulate water and air pollution from cruise ships, under a bill passed in late June by the state legislature. Lawmakers approved the landmark measure to put controls on the booming industry during a special session called by Gov. Tony Knowles, one of the chief advocates of the regulation.

The bill, in a slightly different form, passed the state House before adjournment of the regular legislative session last month. But it stalled in a Senate committee. Knowles called the special session after insisting repeatedly that the state needed regulatory power as soon as possible.

Cruise travel to Alaska has grown dramatically over the past decade, thanks in part to the use of ever-larger ships capable of carrying thousands of passengers at a time. This summer, 683,000 cruise passengers are expected to come through southeast Alaska's Inside Passage, along with thousands of crewmembers. That is an increase from about 250,000 reported by Juneau city officials in 1990.

Some ships carry more people than live in the Alaska ports they visit.

Concerns over the pollution from the ships, the largest of which fly foreign flags and have been exempted from many U.S. laws, has grown along with the passenger loads.

Recent criminal convictions of cruise companies for hazardous waste dumping also sparked interest in state regulation.

The bill gives the state authority to monitor and enforce state-set standards for the ships' sewage. While a federal law enacted in December limits sewage disposal from cruise ships carrying 500 or more passengers, the state measure applies to those carrying 50 or more passengers. The state law also imposes new limits on so-called "graywater," the runoff from sinks, showers and laundries, and on air pollution emissions. And it will charge cruise companies \$1 for each passenger to fund the state program.

The final measure deleted provisions that would regulate the ships' hazardous wastes, such as oil and chemicals from photography labs and dry-cleaning operations. That disappointed lawmakers who had sought broader regulation.

16. California Oxygenate Waiver Denied By US EPA

The Bush administration has rejected California's request for a waiver from federal rules requiring cleaner gasoline, giving a major boost to the U.S. ethanol industry.

The Environmental Protection Agency said California must obey Clean Air Act requirements for cleaner-burning fuel, even though the state is phasing out MTBE because it may contaminate groundwater.

The other additive available to increase the oxygen content of gasoline and make it cleaner-burning is ethanol, which is typically made from corn or other crops.

"We cannot grant a waiver for California since there is no clear evidence that a waiver will help California to reduce harmful levels of air

pollutants," EPA Administrator Christine Todd Whitman said in a statement. Whitman also said the agency ruling would not boost gasoline pump prices in the nation's most populous state. Some experts have said fuel prices could rise by several cents a gallon if the waiver was denied.

CALIFORNIA LAWMAKERS BLAST DECISION

Federal law requires that for areas with the worst pollution - like many California cities - reformulated gasoline should contain at least 2 percent oxygen by weight. The requirement applies to about 70 percent of the gasoline sold in California.

Without the federal exemption, California refineries will have to turn to ethanol as an oxygen additive to make cleaner-burning gasoline. The additive currently in use, methyl tertiary butyl ether or MTBE, is to be phased out by the end of 2002 because of pollution concerns.

The state asked for the waiver in 1999.

Reaction from California was swift and harsh.

Democratic Sen. Dianne Feinstein declared the Bush administration had "once again turned a blind eye to California." The state has also been stymied in its attempts to convince the White House on the need for price caps on expensive wholesale electricity prices.

"Californians already pay some of the highest gasoline prices in the nation and have been besieged for months by an energy crisis that has included blackouts and a dramatic rise in electricity and natural gas prices," Feinstein said.

"Now we face even higher gasoline prices thanks to this unnecessary federal mandate,"

she said.

The EPA decision was eagerly sought by farm-state lawmakers, who want to boost the use of ethanol to help whittle down huge stockpiles of corn.

The National Corn Growers Association estimated that about 230 million bushels of corn will be needed each year to meet California's new demand for ethanol. That should boost corn prices by about 10 cents a bushel, or add roughly \$1 billion to the value of the annual crop.

Ethanol is subsidized by the U.S. government through an excise tax exemption worth 5.3 cents a gallon at the pump.

While California has a Democratic governor, and some have suspected that politics may have played a role in the decision, New York's Republican governor has indicated his intention to request a waiver as well. This may be more difficult for the Bush administration to deny when and if New York applies.

17. L.A. To Turn Smoggier, Stormier As A Result Of Global Warming According To A New Study

Los Angeles could become as hot as central Mexico, wrapped in smothering smog in summer and wracked by violent winter storms, if the direst projection for climate change plays out over the next 80 years, according to a new study released in June.

That would cause problems from flooding and cliffslides among the million-dollar homes of Malibu to increasing outbreaks of asthma and tropical diseases among the city's poor, the study by the advocacy group Environmental Defense said.

The study was an attempt to apply global

models for warming to Los Angeles, home to Hollywood and the nation's second-largest city, the authors said.

Since 1910, the average temperature in relatively mild downtown Los Angeles has crept steadily higher to about 66 degrees Fahrenheit (18.8 degrees Celsius) in 2000. If that trend were to continue, southern California would be about 3 degrees (about 1.5 degrees Celsius) warmer by 2080 - a conservative guess - or up to 10 degrees hotter (five to six degrees Celsius) in the worst-case scenario, the study said.

As a result the number of days when Los Angeles is hotter than 90 degrees Fahrenheit (32 degrees Celsius) increase from under five per year now to as many as 37 days in 2080 - near the current range for Guadalajara, Mexico, according to the study.

The study took climate data for Los Angeles on temperature, rainfall and the frequency of storms and applied long-term forecasts developed by a Canadian research center and the Hadley Centre, a branch of Britain's national meteorological service.

The direst forecasts of both of models would imply an increase of up to 10 degrees Fahrenheit (five to six degrees Celsius) over the next 80-90 years, the study said.

By comparison, the earth itself has warmed only about 1 degree Fahrenheit (about 0.6 degree Celsius) over the past century, a change that has been linked to glacial melting and the death of tropical coral reefs.

In southern California, that warming is also more likely to correspond to much more frequent powerful El Nino-driven winter storms of the kind that partially destroyed the famed Santa Monica pier in 1983, said Oppenheimer.

Those storms could also erode coastal cliffs and beaches from Malibu to the north west of Los Angeles to Laguna to the south, the study said.

18. President Bush Pushes Environment Spending As Polls Slump

President George W. Bush promoted his plan to give states more power over environmental spending as a poll showed his job approval ratings had declined to new lows. Speaking at a lake shore in Oak Mountain State Park near Birmingham, Bush said his proposal to give states \$450 million in unrestricted "block" grants for land and water conservation projects in 2002 would allow them to make their own decisions on how to best protect the environment.

Bush gave no sign of being worried by a New York Times/CBS News poll that showed his job approval rating at 53 percent, down four points from May and seven points from March. His favorable rating as president hit a new low of 37 percent.

He cited passage of his \$1.35 trillion tax cut as evidence of bipartisan cooperation and a changing tone in government.

The grant money Bush proposed is \$340 million more than in the current fiscal year, which ends Sept. 30. The 36-year-old Land and Water Conservation Fund, which finances state and federal efforts, would for the first time be fully funded at \$900 million including the new spending proposed by Bush.

Bush would let states use their share for activities such as wildlife conservation and wetlands restoration as well as traditional parks and recreation purposes.

Bush has proposed raising federal spending on all conservation programs to \$1.5 billion in 2002, up from \$1.46 billion in 2001.

But to fund the block grants, he would cut an array of federal conservation programs, the most glaring of which is eliminating a grant program for urban parks and recreation that received \$30 million in the current year.

The White House insisted that states would have the flexibility to spend on urban parks if they choose.

Conservation groups, already locking horns with the Bush White House over a number of issues, reacted angrily.

19. NY Seeks Cuts in Power Plant Emissions

In October 1999, Governor Pataki directed the state Department of Environmental Conservation (DEC) to issue regulations requiring generators in the state to reduce sulfur dioxide (SO₂) emissions by 50 percent beyond federal Clean Air Act requirements by 2007, and expand summertime nitrogen oxide (NO_x) controls to year-round in 2003. Now, his environmental agency has proposed legislation to meet his directive.

Under the new regulations, SO₂ emissions would be reduced by an additional 130,000 tons annually, and NO_x emissions would be reduced by 20,000 tons annually.

DEC said the draft regulations contain a provision that allows an individual facility a temporary exemption from emission requirements if the State Department of Public Service decides compliance would imperil the reliability of the New York State electric power system.

Power supplies in New York, like California,

were expected to be tight this summer because very few plants have been built in the state over the past decade even though demand for power increased with the growing population and use of computers and other technology devices.

New York, however, has spent hundreds of million of dollars, including more than \$500 million to install 11 small natural gas turbines, as well as hundreds of millions more for energy conservation programs, to prevent a California-like energy crisis from happening in the transmission-constrained New York City/Long Island parts of the state.

The National Acid Precipitation Assessment Program estimates 24 percent of lakes in the Adirondacks in New York northwest of the State capital Albany are seriously acidic. Moreover, a 1995 U.S. Environmental Protection Agency study found that, even with the emission reductions required by the federal Clean Air Act, the number of acidic lakes in the Adirondacks will double by 2040.

In 1998, New York State generators emitted 313,606 tons of sulfur dioxide, while Ohio emitted 1.4 million tons and Indiana 968,340 tons, much of which contributed to New York's acid rain problem. New York's 1998 NOx emissions were 102,000 tons, Ohio's 515,992 tons, Indiana's 363,626 tons and Kentucky's 319,413 tons.

On average, emissions from utilities nationwide have been increasing due to growing demand for electricity, and the transport of air pollution contributes to a host of problems, including acid rain, smog, and poor visibility.

New York has already implemented ahead of schedule statewide NOx reductions that were required by the Clean Air Act and the State has lead negotiations on a regional level to

reduce the interstate transport of all air pollution.

20. GM Seeks To Weaken Tier 2 Diesel Requirements

General Motors is quietly preparing a push to loosen the nation's clean-air rules to allow wider use of diesel engines as fuel-saving alternatives to gasoline light-truck engines according to a Wall Street Journal report. The preparation follows GM's victory in the first round of its fight to stave off significantly tougher federal fuel-economy standards, the paper said.

General Motors, the world's largest auto maker, is taking its pro-diesel campaign public with a report issued by the Diesel Technology Forum. GM is the only auto maker in the group, which includes makers of diesel engines and diesel-system components, as well as oil company Exxon Mobil.

The report notes that although diesels accounted for less than one percent of new car and light-truck sales in the U.S. for 2000, they are surging in popularity in Western Europe, where they constituted about one-third of new sales. Diesels can get at least 30 percent better fuel economy than comparably sized gasoline engines - an important advantage in Europe, where gasoline prices are high, the newspaper said. Tax policies in some European countries encourage diesel use, but so do European clean-air standards, which are more lenient than U.S. Tier 2 rules toward the pollutants associated with diesel motors.

The Diesel Technology report says new clean-air rules in the United States "constitute a significant challenge for the future of diesel vehicles in America." GM officials say they hope to persuade government officials to revisit those regulations, set to take effect

starting in 2004.

21. EPA Chief Considers Limits on Boutique Fuels

U.S. Environmental Protection Agency Administrator Christie Whitman said in an interview that she was considering cutting the number of pollution-fighting gasoline blends which the industry partially blames for seasonal price spikes. Whitman said in a USA Today interview that the EPA was considering limiting states to three or four so-called "boutique fuels" instead of about a dozen formulas currently available.

Whitman also told the newspaper that she was not considering a requirement that all states use only one formula.

"It is very much a states' rights issue," Whitman was quoted as saying. "Boutique fuels are a result of states making independent decisions about (meeting) their clean-air requirement.... That's not to say we wouldn't eventually cut the number of fuels."

The 1970 Clean Air Act requires drivers in polluted urban areas to use fuels with special additives like MTBE or ethanol that burn cleaner and reduce smog. The regulations have caused a balkanization of the U.S. gasoline market, and require refiners to tailor gasoline for cities with specialized fuel regulations.

Some oil industry experts blame boutique fuel requirements for spikes in high pump prices as refiners switch to producing them each summer and fall. Refiners have also said the number of blends required by the EPA reduces storage capacity and leads to shortages.

Whitman told USA Today the problem could be fixed by easing rules on keeping different

blends of gas in the same storage tank.

22. "Independent" Panel To Review New Diesel Rules

The Bush administration will convene a panel of automakers, oil refiners, environmental groups and other experts to reexamine Clean Air Act standards that limit sulfur content in diesel fuel and heavy duty engine emissions, the Environmental Protection Agency has publically announced. It was not immediately clear which subcommittee would oversee the review. Acting Assistant Administrator Robert Brenner, in Aug. 1 testimony before the Senate Committee on Environment and Public Works, suggested the review be done under an existing Clean Air Act Advisory Committee, established by the EPA to advise on air pollution issues.

A broad-based panel of auto makers, oil firms, state offices and environmental groups would examine clean diesel technology developed by fuel makers and auto makers, the EPA spokeswoman said.

Senate Democrats approved that EPA suggestion, but disputed any attempt to delay implementation. A letter to EPA Administrator Christine Todd Whitman dated August 2 and signed by six Democratic Senators said "there is no need for any additional review of the diesel rule" aside from existing rules for a two-year review. But if a review is needed, the Clean Air Act Advisory Committee "is an appropriate forum," the letter said.

The six senators sit on the Environment and Public Works Committee, which would write any legislation affecting diesel fuel limits. Signers included Harry Reid of Nevada, Joseph Lieberman of Connecticut, Barbara Boxer of California, Hillary Rodham Clinton of New York and Independent Senator Jim Jeffords of Vermont, head of the committee

and a professed champion of clean-burning fuel.

Diesel de-sulfurization is a contentious topic between automakers and fuel refiners. Auto companies, represented by lobbying group Alliance of Automobile Manufacturers, say the fuel is critical to offer cleaner, more efficient cars to US consumers.

But oil refiners point to onerous technology required to remove sulfur from diesel fuel, and say that retooling their refineries to make the fuel could cost upward of \$8 billion and spur fuel shortages.

Environmental groups oppose the review as an attempt to revisit current standards and potentially weaken existing rules.

23. EPA Moving Toward Non Road Rulemaking

The US EPA has indicated its intention to issue a so called White Paper as early as September, to initiate the regulatory process which it hopes will lead to a substantial tightening of requirements for large off road diesel engines and diesel fuel. Several options are on the table but EPA seems to be leaning toward a program with the following primary attributes:

- < Eliminate the already adopted Tier 3 NOx requirements slated to be introduced in 2006
- < Forego adoption of Tier 3 PM requirements scheduled to be introduced in 2006
- < Require all off road diesel fuel to achieve a 15 PPM sulfur limit before

2008 (temporary exemptions will likely be provided for small refiners)

- < Set 2008 PM limits similar to those adopted last year for on road diesels such that all new off road heavy diesel engines will be equipped with particulate filters
- < Phase in NOx limits starting in 2008 similar to those adopted last year for on road diesels.

Given EPA's announcement, it was decided that the FACA workgroup which has been analyzing non road issues should summarize its work to date and transmit it to the subcommittee co chairs who could then transmit it to EPA for its consideration. The Mobile Source Technical Review Subcommittee will likely discuss EPA's white paper at its mid-October meeting and decide at that time what further work the workgroup could do to assist EPA in its future rule making process.

24. California Approves Two Retrofit Devices

A. Engelhard DPX System

The Air Resources Board (ARB) has verified that the Engelhard DPX, with both the MEX and NEX catalyst formulations, reduces emissions of diesel particulate matter (PM) by 85 percent or greater for engines from the engine families in Table 1 in the applications listed in Table 2, for an emissions durability of 150,000 miles. The DPX is therefore approved as a Level 3 retrofit device for those engines and applications.

Table 1. Engine Families Verified for Use with the ECS

Engine Series	Engine Families
1995 Cummins M11 10.8 L	SCE661EJDATW, SCE661EJDASW
1996 Cummins M11 10.8 L	TCE661EJDATW, TCE661EJDARB
1997 Cummins M11 10.8 L	VCE661EJDATW, VCE661EJDARB
1998 Cummins ISM 10.8 L	WCEXH0661MAE, WCEXH0661MAD
1999 Cummins ISM 10.8 L	XCEXH0661MAI, XCEXH0661MAH
2000 Cummins ISM 10.8 L	YCEXH0661MAI, YCEXH0661MAH
2001 Cummins ISM 10.8 L	1CEXH0661MAR, 1CEXH0661MAQ

Table 2. Verified Applications of the ECS

Applications	
Refuse haulers	School buses
Fuel tanker trucks	Long haul trucks
Urban buses	Long haul buses

retrofitted with a DPX.

The aforementioned verification is valid provided the following operating criteria are met:

- < The engine must be operated with a fuel that contains a sulfur content of no more than 15 parts per million by weight.
- < The average engine exhaust temperature must be at least 225 degrees Celsius. Since there may be significant variations from application to application, Engelhard has indicated that it will review actual vehicle operating conditions (duty cycle, baseline emissions, exhaust temperature profiles, and engine backpressure) prior to retrofitting a vehicle with the DPX to ensure compatibility.
- < The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- < Engelhard must install a backpressure monitor and indicator light on all vehicles

The ARB estimates that the DPX will incur no discernible fuel economy penalty when used in a compatible application.

After reviewing the submitted data, the ARB does not find that the DPX filter system has an appreciable effect on overall emissions of oxides of nitrogen.

B. Johnson Matthey CRT Filter

The Air Resources Board (ARB) has verified that the Johnson Matthey CRT filter system reduces emissions of diesel particulate matter (PM) by 85 percent or greater (or to at most 0.01 grams per brake horsepower-hour) for engines from the engine families in Table 3 in the applications listed in Table 4, for an emissions durability of 150,000 miles. The CRT filter system is therefore a Level Three retrofit device for those engines and applications.

Table 3. Engine Families Verified for Use with the ECS.

Engine Series	Engine Family
1999 Detroit Diesel Corporation Series 50 Bus	XDDXH08.5FJN
2000 Detroit Diesel Corporation Series 50 Bus	YDDXH08.5FJN
1999 Detroit Diesel Corporation Series 50 Truck	SDDXH08.5EJL
1998 Detroit Diesel Corporation Series 60 12.7L	WDDXH12.7EGD

Table 4. Verified Applications of the ECS.

Applications	
Refuse haulers	School buses
Fuel tanker trucks	Long haul trucks
Urban buses	Long haul buses

The aforementioned verification is valid provided the following operating criteria are met:

- < The engine must be operated with a fuel that contains a sulfur content of no more than 15 parts per million by weight.
- < The engine exhaust temperature must be at least 270 degrees Celsius for 40 percent of the operating cycle.
- < The engine's exhaust must produce an oxides of nitrogen (NOx) to PM ratio of at least 8, with a preference for a NOx/PM ratio of 15 or higher.
- < The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- < Johnson Matthey must install a backpressure monitor and indicator light on all vehicles retrofitted with a CRT filter system.

Since there may be variation in driving conditions, we recommend review of actual vehicle operating conditions (actual duty cycle, baseline emissions, engine backpressure, exhaust temperature profiles,

fuel consumption, and fuel sulfur), prior to retrofitting a vehicle(s) with the ECS, to ensure proper operation of the ECS.

The ARB estimates that the CRT filter system will incur no discernible fuel economy penalty when used in a compatible application.

After reviewing the submitted data, the ARB does not find that the CRT filter system has an appreciable effect on overall NOx emissions.

25. NAS Panel Makes Last Minute Shifts On Fuel Economy

A report on possible increases to U.S. fuel economy standards was revised at the last minute to give automakers more time to improve fuel efficiency. The report from a panel at the National Academy of Sciences still offered a range of possible increases for fuel economy standards, but avoided making a specific recommendation.

While the report does not recommend increases as high as environmental groups

are pushing for, it will likely increase pressure on automakers who have been opposing any increase on federal standards so far.

Many studies of fuel economy have looked at increases possible in 10 years or more, giving automakers enough lead time to design and build more efficient engines and vehicles. The panel's report is now expected to offer a similar time frame.

The changes were made after the 13-member panel received comments on a draft copy of the report from outside reviewers. A leak of that draft caused some concern in the industry, and spurred General Motors Corp. to contact some members. But a GM spokesman said the automaker only talked to the panel about the timing of the report's release, not its contents.

The debate over fuel economy has heated up this summer as environmental groups saw an opportunity to raise federal standards for the first time in years. Republican leaders who have traditionally helped automakers oppose such moves have also been more receptive to increases beyond the current 27.5 miles per gallon average for cars and 20.7 mpg for trucks.

Despite the standards, American demand for gasoline has grown 30 percent since the 1970s, driven by increases in both the number of vehicles and the number of miles driven by each. The country now burns about 323 million gallons of gasoline a day for passenger vehicles. That could grow to 420 million gallons over the next decade if fuel economy does not improve.

While the standards have been frozen for several years, the average fuel economy of all new vehicles peaked in the late 1980s and has since declined as consumers bought more pickup trucks and sport utility vehicles.

The average for all new vehicles last year was 24.7 mpg. Environmental groups say 40 mpg for passenger cars and trucks in a decade is possible.

As part of his energy plan, President George W. Bush has said his administration will use the panel's report as a starting point for considering higher standards. But the U.S. Congress has already begun debating whether to raise the standards, and the House of Representatives has approved a bill calling for a slight increase (see below).

Detroit's Big Three, led by GM, have been staunchly against any increase in federal fuel economy standards, saying it would imperil passenger safety and hurt the economy.

GM has released a study saying any efforts to cut vehicle weight to meet higher fuel economy standards would increase the fatality risk in accidents. GM also said that a 3 mpg increase in truck standards today would force GM to cut production by 1 million vehicles, slash jobs and close factories. But the industry isn't united on the topic. On the other end is Honda Motor Co. Ltd. , which says higher standards are fine, but would prefer the actual numbers be set by government experts rather than Congress.

"We're not opposing an increase, and if a determination is made by policymakers that an increase is appropriate, we want to make sure they understand the ramifications," said Ed Cohen, Honda's vice president of government and industry relations.

Honda and a few other foreign automakers can handle an increase in fuel economy standards easier than their domestic competitors because they have room to spare under the current system, thanks to a system of credits given for surpassing standards and because they have consistently exceeded

requirements.

For example, Honda's truck fleet averaged 25.4 mpg in 2000. That's 4.7 mpg higher than required, and Honda has credits that can be applied sometime in the next three years. Last year, GM and the Chrysler side of DaimlerChrysler AG used credits to bring their ratings from 1997 into compliance.

26. NAS Says Vehicle Emissions Inspection Programs Should Target Worst Polluters

By expending too many resources to inspect "cleaner" low-emitting vehicles, coupled with a lack of effective ways to deal with the dirtiest ones, states are missing opportunities to reduce air pollution, says a new report from the National Research Council of the National Academies. Older and malfunctioning vehicles that usually make up about 10 percent of the nation's fleet, but typically emit about 50 percent of most harmful air pollutants from motor vehicles, should be the primary target of state emissions inspection and maintenance programs if they are to achieve any real progress in reducing vehicle emissions.

The report, requested by Congress, also endorses findings from independent and state-sponsored evaluations showing that flawed computer models used by the Environmental Protection Agency (EPA) and state agencies overestimate the reduction in vehicle emissions that is attributable to inspection and maintenance programs. Actual emissions are typically reduced by less than half of what was projected.

"Inspection and maintenance programs should focus on repairing the worst polluting vehicles and verifying repairs, but in ways that are both cost-effective for states and not overly burdensome for owners," said Ralph J.

Cicerone, chair of the committee that wrote the report and chancellor at the University of California, Irvine. "We also need better methods of evaluating the impact of these programs. But having said that, it's important to emphasize that these programs are absolutely necessary to reduce harmful auto emissions and achieve better air quality."

Inspection and maintenance programs have been set up in jurisdictions that violate federal air-quality standards, and typically involve regularly scheduled exhaust tests measuring emissions of carbon monoxide, hydrocarbons, and in some cases nitrogen oxides. The programs are implemented by the states, and overseen by EPA, and have the potential to reduce emissions in several ways. Motorists may be persuaded to do a better job of maintaining their vehicles, repairs might be made before inspection or as the result of failing a test, and some vehicles may be scrapped because the owner did not think the repair was worth the cost given the vehicle's age or condition.

Amendments made to the Clean Air Act in 1990 require a number of states with particularly high levels of pollution to conduct more comprehensive, or "enhanced," inspections and to submit an evaluation of the effectiveness of their emissions inspection programs to EPA every two years, although most states have not complied. A barrier to federal compliance has been EPA's mandate to use only one evaluation method, but the agency has begun to provide better guidance to states. Its guidelines, however, should be based on more sound measurements and statistical methods -- and be peer reviewed, the committee said. Comprehensive, long-term evaluations of testing programs should be conducted in a few locations to research some fundamental issues related to the efficacy of these programs, such as the extent of pre-inspection repairs, the durability

of emissions-related repairs, the effectiveness of inspection programs in reducing non-tailpipe emissions, and the fate of failing vehicles.

Focusing on high emitters may raise fairness concerns because these vehicles are more likely to be owned by people with limited economic means, the committee said. As it stands now, 10 percent of vehicles required to undergo emissions testing never show up for inspection, while 10 percent to 27 percent of vehicles failing inspection never end up passing the test. Since many of the owners of these cars probably cannot afford to fix them, policies should be explored to provide financial relief or other incentives so they will obtain long-lasting repairs or replace faulty vehicles.

On the other hand, there also is growing evidence that reducing the frequency of testing vehicles with a low probability of failure, including an exemption for testing recent year models, could be very cost-effective, the committee said.

The models used by EPA and the states to project emissions reductions need improvement, the committee said. Currently, states are allowed to use overly optimistic assumptions in the models, leaving them little incentive to test vehicles as they are being driven to verify whether the emissions reductions projected by the models are actually occurring or not. Evaluation of the emissions benefits from inspection and maintenance programs should be based on data collected from on-road vehicles. For example, remote-sensing devices could be used to estimate emissions of moving vehicles.

The credits that EPA grants to states for emission-reduction benefits attributable to inspection and maintenance programs should

be closely tied to actual reductions that are based on observational and empirical data, not projections from models, the committee emphasized. The credits are accumulated by states to demonstrate compliance with air-quality standards.

New technology may change how vehicle-emissions tests are conducted in the future. For example, the current version of on-board diagnostic systems in cars built since 1996 alert motorists to potential problems in both the exhaust and emissions-control components by illuminating a light on the dashboard, and the vehicle's computer can be used by mechanics to trace the source of a malfunction. However, these systems do not actually measure emissions, instead relying on the computer to indicate whether any emissions-related malfunctions exist.

Nonetheless, EPA has issued a rule requiring states to use on-board diagnostic systems for testing individual cars and trucks. Whether this technology can become effective and reliable as a testing device and whether it would result in large costs to inspect and repair low-emitting vehicles, perhaps at the expense of finding and fixing high-emitting vehicles, requires an independent examination, the committee said.

The report notes that future air-quality improvement programs are likely to place greater emphasis on controlling emissions of nitrogen oxides and particulate matter because of growing environmental and health problems attributable to these pollutants. This means inspection programs may need to target the heavy-duty diesel vehicles that are a major source of these pollutants but largely exempt from current inspections.

27. The US House of Representatives Passes Energy Bill

The Republican-controlled U.S. House of Representatives adopted a broad energy bill that aims to boost domestic energy supplies and reduce American dependence on foreign oil.

A separate energy bill pending in the U.S. Senate, which emphasizes conservation measures over domestic drilling, will not be debated until September.

The following are key components of the House energy package, which includes a total of more than \$33 billion in tax breaks over 10 years:

- < Allow oil and natural gas drilling in the Arctic National Wildlife Refuge in Alaska. The wilderness area is home to polar bears, caribou and 160 species of migratory birds.
- < Provide \$3 per barrel tax credit for low-volume or stripper wells when energy prices are low, and would be phased out when oil prices exceed \$15 per barrel.
- < Allow oil refiners to expense capital costs and credits for making low-sulfur diesel fuel.
- < Provide tax credits to consumers who buy solar water heaters, fuel cell vehicles and energy efficiency improvements to homes.
- < Launch \$2 billion, 10-year program to encourage cleaner coal technology.
- < Reduce gasoline use by sports utility vehicles (SUVs) and minivans by 5 billion gallons between 2004 and 2010, equal to a two-week supply of motor fuel at current consumption rates.

- < Provide royalty relief to oil companies for drilling in deep waters in the Gulf of Mexico.
- < Require the Energy Department and Environmental Protection Agency to study "boutique fuel" requirements to reduce smog in urban areas.
- < Order National Academy of Sciences study on how to improve domestic energy supplies.

In a big win for automakers, the House refused to require sport utility vehicles to meet the same higher gasoline mileage requirements as passenger cars in six years. The fuel efficiency provision was part of broad-ranging energy legislation wrapped into one package to implement much of the Bush administration's energy plan.

Lawmakers rejected by a wide margin an amendment that would have forced Detroit to improve the fuel efficiency of SUVs, minivans and light trucks from the current 20.7 miles per gallon (mpg) to 27.5 mpg by 2007.

Republican Rep. Sherwood Boehlert of New York, who sponsored the provision, said raising current mileage standards would save more oil than could be drilled in the Arctic National Wildlife Refuge. Drilling in the Alaskan refuge is the central plank of the White House energy plan. "There's just no persuasive argument against raising (fuel) standards. It's the simplest, most basic conservation step available to us," Boehlert said.

Opponents, however, said the higher fuel requirements would force automakers to build lighter, unsafe vehicles. "Don't kill Americans with this amendment," warned Republican Rep. Billy Tauzin of Louisiana, chairman of the House Energy and Commerce

Committee.

Rep. Heather Wilson, a New Mexico Republican, gave an emotional plea against raising the fuel standards and recalled how she believed her life was saved in an accident because she was driving a heavy SUV.

The House bill includes language requiring the Transportation Department to reduce gasoline use of SUVs and light trucks by 5 billion gallons between 2004 and 2010. Democrats and environmentalists claimed the fuel savings - which equals the amount of gasoline U.S. drivers use in two weeks - would increase the fuel efficiency of light truck by less than one mpg. "This is the proverbial drop in the oil bucket," said Democratic Rep. Anna Eshoo of California, referring to the 5 billion gallons of fuel that would be saved.

The Transportation Department is expected to begin working later this fall on raising the current fuel standards, relying in part on a report this week from the National Academy of Sciences that said automakers could increase fuel efficiency by as much as 46 percent over the next 10 to 15 years.

Much of the House debate centered on a provision in the bill allowing drilling in the Arctic National Wildlife Refuge, a controversial plan endorsed by Bush administration to boost domestic energy supplies and cut foreign oil imports.

The White House maintains energy firms could drill for oil and natural gas on about 2,000 acres (809.4 hectares) of the refuge's 19 million acres (7.689 million hectares) without harming the environment.

"The president believes it is very important to a balanced energy program to have conservation, but also to explore," White House spokesman Ari Fleischer told

reporters.

Republican lawmakers are concerned about public unease over the administration's energy policies. Green groups have also said they will work to defeat any lawmakers who vote for drilling in ANWR in next year's congressional election.

House lawmakers also had to consider the political reality that the Democrat-controlled Senate is set in September to block drilling the Alaskan refuge.

Government estimates have said the refuge could hold up to 16 billion barrels of oil, enough to replace the crude the United States imports from Iraq for 70 years. The U.S. market consumes close to 20 million barrels of petroleum a day and must import about 56 percent of that amount.

Democrats also criticized the energy bill for containing billions in tax breaks for big oil companies already enjoying record profits. The tax relief would be paid for by dipping into the Medicare Trust Fund, they said.

Rep. Markey said oil firms were, "going to build a pipeline into the pockets of the senior citizens of our country."

"It's nothing more than a grab bag of goodies" for the oil industry, said Rep. Rosa DeLauro of Connecticut.

28. Clean Air Groups Fear Bush Retreat On Pollution Rules

Clean air advocates have expressed deep concern that the Bush administration is planning to scrap or alter enforcement of the new source review provisions of the Clean Air Act, which limits pollution from rebuilt or expanded operations at power plants and refineries. A 90-day administration review of

the so-called "new source" rules, which activists say is a vital section of federal anti-pollution efforts, has come to an end.

"Only this administration has questioned the law," said Connecticut Attorney General Dick Blumenthal, who attended a media briefing led by the Clean Air Trust, the U.S. Public Interest Research Group and Natural Resources Defense Council.

In mid-May Vice President Dick Cheney ordered a review of the two-decades old new source rules as part of the White House energy task force recommendations for a new energy policy. Electricity generators and oil refiners have complained to the Bush White House about interpretation of the rules.

The Clinton administration had sued major power companies in the Midwest and South for violating new source rules, blaming them for operating 51 plants illegally by pumping tons of nitrogen oxide, sulphur dioxide and other pollutants into the air, which eventually sweep into the Northeast. Now, environmentalists are worried the Bush review of clean air rules will turn back the clock on enforcement.

Blumenthal said dirty air has killed 299 people in his state, leading him to sue power companies for billions in damages for healthcare costs and environmental destruction.

He said currently the state has joined in four suits against power firms. New York, New Jersey and Connecticut have sued Ohio Edison in a case expected to proceed to trial in the spring of 2002, he said. Massachusetts, Rhode Island, New Hampshire, Vermont, Maryland, New York, New Jersey and Connecticut have sued Columbus, Ohio-based American Electric Power. New York and Connecticut have sued Richmond, Va.-

based Dominion Resources, and New Jersey, New York and Connecticut have also sued Cincinnati, Ohio-based Cinergy.

U.S. Environmental Protection Agency Administrator Christie Whitman recently proposed sweeping changes in the regulation of power plant pollution that would replace five of the government's toughest programs with a single, flexible approach favored by utilities. Whitman outlined a plan for cleaning up major components of power plant smog that represents a significant departure from the EPA's traditional regulatory dictums. She called for a major expansion of pollution credit trading, which, up to now, has had varying success.

Under the new plan, the EPA would scrap some of the most stringent measures devised by the agency to deal with power plant emissions. One provision to be set aside aims to cut harmful mercury emissions; another is meant to reduce emissions from Midwestern power plants by 85%; another is designed to restore visibility at national parks. Especially unpopular with industry, one measure, known as new source review, requires the installation of advanced pollution controls whenever power plants are expanded or modified. It too would be phased out.

"New source review is certainly one of those regulatory aspects that would no longer be necessary," Whitman told Sen. Bob Smith (R-N.H.) at the hearing by the Environment and Public Works Committee. "All of those [programs] could be aligned into one regulatory process" that she said would work better than existing rules.

Whitman's comments offer the first peek into the administration's plans for cleaning some of the dirtiest polluters left in the nation. Debate over the administration's clean-air approach has shifted to Congress as it

considers whether to revise the national Clean Air Act.

The magnitude of the proposed revisions caught environmentalists by surprise but buoyed industry representatives who say existing controls are costly and inefficient.

After the hearing, Whitman stressed that the overall goal is to clean the air more efficiently than current rules do. Although the administration has not yet released a so-called multipollutant cleanup strategy, Whitman contended that collapsing several regulations into one far-reaching approach would be easier for regulators and industry to manage.

"What we're looking for is targets under this legislation that significantly clean up the air beyond what our current regulatory, statutory requirements would do," Whitman said. She added that new source review, for example, "could potentially be no longer necessary if you have the right kind of targets set in a multi-emissions bill. We have to wait and see where the targets are set."

Utilities have lobbied Vice President Dick Cheney's energy task force to prevent the EPA from aggressively enforcing the new source review regulation. Industry and administration officials say the provision is onerous and prevents plant upgrades, although EPA officials say it is a key tool for forcing dirty, old plants to cut emissions by up to 95%.

During the Clinton administration, federal officials charged that 32 coal-fired power plants in several Southern and Midwestern states ignored a requirement that companies install advanced emission controls when their plants were upgraded. The government reached settlement with three utilities, but a provision in the Bush administration's energy

plan stalled those enforcement actions pending a review of power plant controls.

C. Boyden Gray, attorney for the Electric Reliability Coordinating Council and former White House counsel for the first President Bush in the 1980s, praised the administration's proposal. He said major utility companies he represents, including Southern Co., Duke Energy Co. and the Tennessee Valley Authority, could clean up with greater flexibility and less cost under the plan outlined by Whitman. "To put everything in a market-incentives basis is a great step. It would be a real breakthrough and a plus for the business community," Gray said.

For example, Gray said EPA has four separate measures to control nitrogen oxides from power plant combustion, including programs to cut acid rain, ozone and haze. Another program scheduled to take effect in May 2004 requires power plants in 19 states to cut summer emissions by 1 million tons annually. He said those programs can be confusing and costly and could easily be replaced by a credit-trading program run largely by power companies.

Under the program being considered by the Bush administration, an emission limit could be established at hundreds of power plants followed by annual reductions in mercury, a toxic metal, as well as smog-forming nitrogen and sulfur oxides. However, a provision to reduce carbon dioxide, a gas implicated in global warming, was dropped under industry pressure. Power companies that reduce beyond their limits could sell emission credits, which represent a pound of pollution, to companies that exceed their limits.

29. McCain, Lieberman Call For GHG Cap-and-Trade Scheme

Sens. Joseph Lieberman (D-Conn.) and John

McCain (R-Ariz.) during speeches on the Senate floor have called for an economy-wide cap-and-trade scheme for greenhouse gas (GHG) emissions many scientists blame for rising global temperatures, though they have yet to introduce legislation mandating such a scheme.

The best chances for passage of legislation regulating GHG emissions lie in the Senate, where various committees with jurisdiction will begin hearings on portions of competing comprehensive energy bills when Congress reconvenes in September and there has been momentum for climate-related action. The energy package the House passed, H.R. 4, would not regulate GHG emissions; in fact it is largely silent on climate-specific programs.

Lieberman and McCain's plan would expand upon S. 556, the so-called "multi-pollutant" bill introduced by Sen. Jim Jeffords (I-Vt.) to limit emissions of carbon dioxide and three other pollutants from power plants. That bill has yet to be marked up.

There has, however, been significant Senate action on the climate change front. Last week, the Senate Governmental Affairs Committee, which Lieberman chairs, passed S. 1008, requiring the Bush administration to establish a White House office dedicated to formulating, within one year, a national strategy to stabilize greenhouse gas emissions many scientists blame for rising global temperatures.

That bill, however, seems like a fallback plan for Lieberman. Late last month the United States was the only country party to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) not to support an agreement reached in Bonn, Germany, paving the way for ratification of the Kyoto Protocol, a UNFCCC side agreement that requires industrialized countries to cut GHG emissions an average 5 percent below 1990 levels by no

later than 2012.

That agreement outlines an international GHG credit trading system, possibly leaving U.S. companies disadvantaged. McCain and Lieberman's plan would create a similar market, though it is not yet clear whether they plan to make the U.S. market mesh with the international system.

"I believe this failure [to reach agreement on the Kyoto Protocol] abdicates the United States' position as a leader in environmental affairs and places U.S. industry at risk," Lieberman said on the floor. By creating a cap-and-trade system here, "we will unleash the power of that market to drive the United States back into its leadership position in the international effort to avoid the worst effects of one of the most serious environmental problems the world community has ever faced."

For McCain, already a leading Republican proponent of action to curb global warming, it was his strongest stance yet. "The agreement reached last week in Bonn, Germany on the Kyoto Protocol means that the rest of the world is moving forward to address this important problem," McCain said on the floor. "Given the fact that the United States produces approximately 25 percent of the total [global] greenhouse gas emissions, the current situation demands leadership from the United States.

"We should reward improvements in energy efficiency, encourage advances in energy technologies and improve land-use practices. Deploying the power of a marketplace to pursue the least-expensive answers is a unique and powerful American approach to the threat of climate change," McCain said.

McCain and Lieberman said they plan to meet with industry sector representatives to

discuss possible legislation when Congress reconvenes. Their plan is sure to draw fire from conservative Republicans, several of whom introduced competing language to S. 1008 Wednesday.

Unlike S. 1008, the GOP bill, introduced by Sens. Chuck Hagel (R-Neb.), Frank Murkowski (R-Alaska) and Larry Craig (R-Idaho), places no deadline on a White House effort to develop a domestic climate change response strategy. It also seems to encourage President Bush to slam the door on mandatory GHG caps for industry by "improving and expanding" the voluntary CO2 emission reduction registry maintained by the Department of Energy.

30. Bush Aide Says U.S. Will Have New Proposals

White House Chief of Staff Andrew Card said that the United States will likely have new proposals for combating global warming to present to world leaders in Morocco this fall. Card's statements, made on NBC's "Meet the Press," come in the wake of mounting congressional criticism of President Bush's refusal to join the Kyoto Protocol, which the president considers flawed. Last week, the Senate Foreign Relations Committee voted 19 to 0 to urge Bush to participate in international efforts to combat climate change with specific proposals.

Card said he is "optimistic that we'll have initiatives that we can go to Marrakesh and talk about with the world leaders that will show that we're serious about solving the problem, that the Kyoto solution is really not a solution at all." Card said a Cabinet-level task force on global warming is making progress.

AFRICA

31. Conference Held On Phase Out of

Lead in Gasoline For Sub Saharan Africa

An EPA team travelled to Dakar, Senegal on June 22 to 29 to participate in the World Bank Regional Conference. Delegates from 25 Sub Saharan African Countries represented governments, industry and civil society. Representatives from the WHO and UNEP also participated.

The Conference resulted in 5 sub regional action plans as well as the Dakar Declaration which states the consensus of participants to join efforts to phase lead out of gasoline in Sub Saharan Africa as soon as possible but no later than 2005.

The conference focused on lead in gasoline for two reasons: first, because of health risks associated with lead and second because of the need to remove lead from gasoline as an essential first step in any clean air program. Numerous highly respected health studies confirm the serious health threat posed by lead in gasoline, even at very low levels. Lead is a dangerous air pollutant contributing to high blood pressure, cancer and heart disease in adults and to reduced intelligence, behavioral disorders and impaired development in children. Removing lead from gasoline is an important first step in any clean air program because unleaded gasoline is necessary to use catalytic converters which can reduce CO, HC and NOx by up to 90 percent or more.

In addition to plenary sessions made up of informational presentations, the conference subdivided each day into sub regional groups representing countries which share fuel distribution and refining facilities. The five sub regional groups included West Africa, Nigeria and neighboring countries, West Central Africa, Southern Africa, and East Africa. Each sub regional group came up with a more or

less specific timetable for lead phase out, recognizing the refining or importation issues particular to that area.

On the final day of the conference the participants agreed to the "Declaration of Dakar" which states that participants agree to "join efforts to accelerate the formulation and implementation of programs to completely phase out leaded gasoline in all SSA countries as soon as possible, latest by 2005, recommend governments to reduce the lead content of gasoline . . . to average not more than 0.4 grams/liter by 2002 and 0.2 grams/liter by 2003, encourage countries with independent import facilities to accelerate their respective lead phasing out programs, harmonize the gasoline norms in all sub-regional markets . . . , complete the sub regional action plans within the next 12 months framing the respective national clean air programs, request the oil supply chain operators to improve their production, storage and distribution facilities in accordance with the target lead phase out time, request WHO, UNEP, WB and bilateral environmental agencies such as US EPA to support SSA stakeholders in developing the capacity to implement the lead phase out programs within air quality management, develop appropriate public information campaign with an active participation of NGO community, request the WB and other international donor agencies to give a high priority to lead phase out in economic policy dialogues with the SSA governments and to continue supporting required technical assistance programs and assisting in the financing of viable investments, and request OAU and other regional organizations (ECOWAS, WAEMU, SADC, CAEMU, etc.) To endorse the phasing out of lead in gasoline in their priority programs and to contribute to the harmonization of standards and technical specifications".

US EPA intends to conduct follow up activities in South Africa, including a technical workshop to be held in or around October, as well as technical assistance to the refinery sector with the support of USAID. In addition, US EPA hopes to support a sub regional workshop for Nigeria and countries supplied primarily by Nigerian refinery products. More broadly, EPA hopes to work with partners, including USAID, UNEP and the World Bank, to assist in realizing the goals enunciated in the Dakar Declaration.

ASIA-PACIFIC

32. Japan Still Trying To Save Kyoto Agreement

U.S. President George W. Bush and Japanese Prime Minister Junichiro Koizumi agreed at a meeting in Washington to have their environment ministers discuss ways to win Washington back to supporting the treaty before the Bonn talks.

Following up, Japanese Environment Minister Yoriko Kawaguchi said that a comprehensive accord on rules of the 1997 Kyoto Protocol must be reached by October to keep the global pact alive. Kawaguchi also said there seemed to be no likelihood of a breakthrough at the next round talks in Bonn scheduled to open on July 16. She suggested that the deadline for final agreement on rules of the Kyoto pact should be late October when a United Nations conference on climate change is to start in Marrakech, Morocco.

Tokyo is expected to propose a revision of the treaty to persuade Washington to rejoin. Japanese officials have said Tokyo had some ideas but have not given details.

Japan is seen as holding the key to the global pact taking legal effect. To do so, it must be ratified by 55 states representing 55 percent

of total man-made output of carbon dioxide.

Japan's participation, along with that of the EU, is likely to lead other nations to join, resulting in the needed 55 percent even without Washington - although the United States is the world's largest producer of greenhouse gases.

If Japan, Russia, the European Union (EU), and a number of Eastern European nations joined hands, they would make up the needed 55 percent even without Washington - even though the United States is the world's largest producer of greenhouse gases.

The EU nations produce some 24.4 percent, Russia 17.4 and Japan 8.5 percent.

Many EU member nations have said they will move forward without the United States and have been trying to persuade Japan to follow suit. An EU mission is visiting Japan to try again. It appears that Japan will not ratify the agreement without the US, however.

33. Malaysia To Promote CNG Cars In Thailand

Malaysia's state oil company, Petronas, has announced that it will introduce its natural gas-powered Enviro 2000 cars to Thailand. Petronas said it had signed a three-year pact with Petroleum Authority of Thailand (PTT) to introduce the five-seat cars, designed by Petronas and introduced in Malaysia in 1998.

Petronas did not say when it would launch the vehicles in Thailand, but said five would be tested on Bangkok roads for six months. In Kuala Lumpur, there are already nearly 4,000 gas-powered cars, including 1,000 Enviro 2000s.

Petronas said it would also help PTT develop regulations and safety standards for gas-

powered cars and refueling stations.

PTT started a pilot project to promote the use of natural gas for taxis in Thailand last year. Under the project, 100 taxis were converted to run on bi-fuel system that operates on either natural gas or petrol. Another 500 taxis will be converted to bi-fuel systems by October.

34. Ban On Leaded Gasoline Takes Effect In Jakarta

A ban on the use of leaded gasoline in the Indonesian capital Jakarta and surrounding areas took effect on July 1 as part of efforts to reduce pollution, Mines and Energy Minister Purnomo Yusgiantoro said. Yusgiantoro said the government would enforce the use of unleaded gasoline across the vast archipelago by October 2003.

Jakarta governor Sutiyoso has said there were some two million vehicles operating in Jakarta, making it one of the most polluted cities in the world. The capital is home to more than 10 million people.

Ariffi Nawawi, downstream director at state oil company Pertamina, said Jakarta and surrounding areas needed around 50,000 barrels per day (bpd) of gasoline.

"We will need to bring in around 10,000 bpd of high octane mogas (vehicle gasoline) to fulfill supply in Jakarta and surrounding areas as part of the clean air policy," he said.

The Jakarta Post newspaper had reported on Saturday that getting rid of leaded gasoline in Jakarta would not take place until the end of July to give Pertamina more time to organize its refineries and retail stations.

35. Vietnam Switches to Unleaded Gasoline

On July 1, Vietnam made a switch from leaded to unleaded gasoline, in a show of environmental leadership and concern for the health of its citizens.

The Vietnamese experience is to be especially noted, because while numerous countries have eliminated leaded gasoline over the past ten years, few have moved as decisively and in as short a time as Vietnam.

In December of 1999, the Ministry of Transport organized a workshop in Hanoi to discuss the issue of switching to unleaded gasoline among Vietnamese government officials, fuel importers, academic and research experts, and the media. With support from the World Bank and a number of bilateral donors (Canada, the Netherlands, Sweden, and the U.S.), representatives from several East Asian countries (Thailand, Korea, Hong Kong, the Philippines, and China) shared their experiences in switching to unleaded gasoline. International experts stated that for countries like Vietnam that do not have significant petroleum refining sectors, the costs of switching to unleaded gasoline are low. Besides refinery adjustments, there are typically no technical constraints to switch to unleaded gasoline. The meeting therefore concluded that a gradual "phase-out" did not make sense for Vietnam, and that an overnight switch would be both technically possible, and much less costly than establishing a parallel distribution system for leaded and unleaded gasoline.

Vietnamese officials, who at the outset of the meeting indicated that the country planned to phase out the use of leaded gasoline by 2005, came away from the workshop with a much more ambitious schedule.

Immediately following the workshop, the Ministry of Transport organized a Steering Committee and began preparation of an

Action Plan for switching to unleaded gasoline. The Action Plan called for: (i) an evaluation of Vietnam's vehicle fleet and what measures, if any, would need to be taken for older vehicles, (ii) an estimation of the savings in foreign exchange by importing less expensive unleaded gasoline, and (iii) the launching of a public education and awareness program on the benefits and process of switching to unleaded gasoline in Vietnam.

Over the next nine months, the Vietnamese government, under the leadership of the Ministry of Transport and the Vehicle Registry, worked on building a consensus among concerned government ministries and state corporations for industry, petroleum product imports and distribution, defense, environment, and public health.

In October 2000, the Prime Ministers office issued a directive on the issue, stating that "To prevent the danger caused by lead emitted from road transport vehicles running on leaded gasoline to people's health and environment, the Prime Minister has made a decision to switch to unleaded gasoline nationwide from July 1st, 2001."

Particular concern was raised in Vietnam that some of its older vehicles, which account for about 10 percent of the automobile fleet, might be damaged without the use of leaded gasoline. But experience in countries with a similar vehicle fleets has shown that older vehicles can use unleaded gasoline with no difficulties, and a series of tests by the Vehicle Registry and the Hanoi University of Technology also concluded that there were no negative effects on either automobiles or motorbikes.

In February, 2001, representatives from Ford Motor Company, Caltex Petroleum Company, and the U.S. Environmental Protection

Agency shared their experiences of introducing unleaded gasoline in other countries. They concluded that in addition to the clear health benefits to Vietnamese citizens, the country faces no serious technical issues for vehicles or the fuel supply system, but rather significant benefits to consumers by reducing maintenance and repair expenses associated with lead. In addition, removing lead from gasoline will allow the use of catalytic converters in Vietnam for more advanced control of vehicle exhaust. Because lead permanently destroys a catalytic converter, it is necessary to switch to unleaded gasoline before introducing them.

"Removing lead from gasoline is one of the truly cost-effective ways to improve the health of children exposed to vehicle exhaust," said Andrew Steer, Director of the World Bank in Vietnam. "Vietnam deserves high praise for moving to unleaded gasoline, and serves as a model for the remaining countries that have not yet banned the use of leaded gasoline."

36. China's Government Orders All Vehicles To Meet Standards

A government notice was posted on June 27 requiring the immediate cease in production of 187 models of sedans and five models of buses using carburetors. Due to their air pollution and high fuel consumption, the sedans using carburetors are being completely replaced by those with electronic injectors. Four offices of the Chinese government including the State Environmental Protection Administration and the State

Economic and Trade Commission issued the notice.

The 187 car models involve more than 50 trademarks and brands of 41 manufacturers. According to the requirements of the notice, the **production** of these models must be discontinued immediately. Starting Sept. 1, the **sales** of these models will be forbidden. Furthermore, the departments of public security and traffic control will not accept the registration of these models after this date.

Sellers must accept, unconditionally, any returned automobiles, even if they have already been sold. The manufacturers are responsible for recalling the cars.

The State Council has decided that sedans manufactured in 2001 or later must use electronic injectors and exhaust catalysts. By the end of last year, there were still nearly 100,000 sedans produced in China without the above-mentioned two devices installed, accounting for 15 percent of the total annual output of sedans.

37. Tokyo Proceeding with Retrofit Effort

The Diesel Advisory Committee, which consists primarily of academics and government officials, developed its recommended retrofit program at a meeting on May 18th and released it publicly on June 11th. Its main features are summarized below.

Model	National PM	2003	2005	A c t u a l
Year	Standard	0.25 g/Kw-hr*	0.18 g/Kw-hr*	Engine
				Certification
				Level

1989	None	Category 1 60%**	Category 3 70%**	Assumed 0.7
1994	0.7 g/Kw-hr	Category 2 30%**	Category 4 40%**	0.7<
1999	0.25 g/Kw-hr	Not Applicable	Category 5 30%**	0.25<

* Tokyo Standard

** Minimum Reduction Necessary For TMG to Consider Device

In summary, if a 1989 truck or bus wishes to operate in Tokyo in 2003 and 2004, it must be equipped with a PM control device that reduces emissions by a minimum of 60%. In 2005, all these trucks must be off the road but diesel buses which wish to continue to operate must have a device installed which results in a minimum PM reduction of 70%.

If a 1994 truck or bus wishes to operate in 2003 and 2004, it must have a device installed that would have reduced its certification level to 0.25 g/Kw-hr. For example, if the particular engine family certified to a level of .69, it would need to install a device that reduced PM by 64% $([0.69-0.25]/0.69)$. To operate beyond 2005 it must have a device that reduces PM by at least 74%.

Ironically, the program requires the most efficient PM control systems to be installed on the vehicles which will be the most difficult and which have the shortest remaining lifetimes while the vehicles in the best condition and therefore most amenable to the most advanced PM filters and which will be on Tokyo's roads for many more years will require the most lenient PM controls. The Tokyo Metropolitan Government (TMG) recognizes this problem and is developing a

set of incentives to encourage companies to install more advanced controls. Incentives under consideration include subsidies, preferential treatment by the municipal government, and public recognition as green companies with a good image.

Another shortcoming in the program as presently designed is that it contains no in use verification program nor any warranty or recall provisions.

38. Toyota Unveils Two New Fuel Cell Hybrid Vehicles

Toyota Motor Corp has developed two fuel cell hybrid vehicles, one jointly with truckmaker Hino Motors Ltd, as part of efforts to meet Japan's 2010 emissions standards by as early as 2005.

The environmentally friendly vehicles - a 63-seater bus and a five-seater passenger car - promise to be three times as efficient as conventional gasoline-powered vehicles, Japan's top carmaker said.

The news comes just days after Toyota unveiled its new four-wheel-drive Estima Hybrid minivan - the world's first hybrid

minivan - for the Japanese market.

Automakers are increasingly turning to hybrid technology, which combines two or more sources of power, such as a gasoline engine, an electric motor or a fuel cell. The goal is lower emissions of toxic gases and greater fuel efficiency. The development of "greener" cars is seen as the key to surviving global competition under stricter environment laws.

Toyota said it and Hino Motors had come up with a low-floor city bus powered by a high-pressure hydrogen fuel cell hybrid system. Known as FCHV-BUS1. The bus has a cruising range of 300 km (186.4 miles) and can reach a top speed of 80 km per hour. Road tests will begin as part of the bus's ongoing development, the company said without elaborating.

The FCHV-BUS1 uses a hybrid system that includes secondary batteries to store energy while braking. It also has roof-mounted high-pressure hydrogen storage tanks and a high-performance fuel cell stack, Toyota said.

ADVANCED PASSENGER CAR

Toyota also announced the development of its hybrid FCHV-4 passenger car which is powered by hydrogen held in high-pressure tanks and can reach a maximum speed of 150 km per hour, with a cruising range of 250 km.

Developed together with the FCHV-3, a more basic fuel cell hybrid unveiled in February, it has been approved for road tests by the transport ministry. Those tests will help Toyota launch an advanced version in the autumn.

"We believe that hybrid technology will be one of the core technologies in the 21st century," Toyota President Fujio Cho told an

environmental forum organized by the carmaker.

Toyota aims to meet Japanese 2010 auto emissions standards in all weight classifications of gasoline-powered passenger vehicles by 2005, he said. Some 34 percent of Toyota's vehicles currently meet those standards. The company also hopes to achieve ultra-low emissions vehicle status for the majority of its passenger vehicles in 2005.

That means producing cars with emissions that are 75 percent below regulated levels for 2000.

"We'll endeavor to install hybrid technology in as many vehicles as possible," Shinichi Kato, Toyota's executive vice president, told the forum.

In addition, the carmaker said it aimed to boost output of environmentally friendly hybrid-powered vehicles to 300,000 in 2005, up from 19,000 in 2000.

It currently has two hybrid vehicles on the market - the Estima Hybrid minivan and the Prius compact sedan, first launched in Japan in December 1997. Toyota has sold about 60,000 Prius vehicles in Japan, Europe and North America, it said.

39. Fuel Cell Hopes For Japanese Refiners

Japan's oil giants are already investing large amounts of money and hope in fuel cells, which promise pollution-free power for everything from cars to refrigerators. High development costs and technological difficulties mean the strategy is not without risks, but with Japan's fuel cell market expected to be worth eight trillion yen (\$66.7 billion) within 20 years, the costs of being left out are greater.

Indeed, after years of stagnant growth and poor profits, fuel cells are seen by some to hold the key not just to profits but also to the very survival of Japan's oil firms.

"If we don't develop the technology for fuel cells, we might not survive this century," said Masaki Ikematsu, group manager at the research and development department of Nippon Mitsubishi Oil Corp, the nation's biggest refiner. "It's as if a phone company had developed only ordinary phones before the era of cell phones - it would have gone bankrupt."

Japan's oil firms are developing technologies that extract hydrogen from fuels such as gasoline or methanol. Within this decade, Japanese experts expect this method to be providing energy for vehicles and ships, and supplying electricity for power plants and home electric appliances.

According to Japan's Ministry of Economy, Trade and Industry (METI), that is likely to boost the market for fuel cells to eight trillion yen by 2020, compared to total oil industry sales of 14.8 trillion yen in the 1999 business year. With other industries, particularly the auto sector, also scrambling to take a piece of the pie, oil refiners are eager not to be left behind.

OPPORTUNITY, RISK

But with the opportunity, comes risk.

Just as mobile phone operators have had to plough vast sums into new technology without knowing the true level of consumer demand, so oil refiners are to some extent stepping into the unknown.

For one thing, fuel cell technology is far from complete, particularly that based on gasoline. The best alternative, methanol, is closer to

being ready for commercial use, but the disadvantage is that it would require refiners to overhaul their sprawling gasoline station networks.

"The cost of building methanol-based stations would be huge," said Kazuya Fujime, managing director of Japan's Institute of Energy Economics (IEEJ). "Unless the problem of infrastructure is cleared, methanol-based fuel cells will not become widespread, while the technology to extract hydrogen from gasoline faces difficulties and will take more time to commercialize."

The ideal solution is to use pure hydrogen gas but this has problems. The fuel explodes easily, requires a lot of storage capacity and would require building a new supply infrastructure from scratch, according to Japanese experts.

METI recently said in a report that Japan was likely to favor gasoline over methanol as a source of hydrogen for fuel cell cars because of the existing service station network.

TRANSFORMATION

Whatever technology is eventually favored, analysts say the refiners of the not-too-distant future may be unrecognizable from their present incarnations, whose operations are overwhelmingly focused on the processing and distribution of oil.

And that may not be a bad thing.

An overcrowded retail market and stiffening competition have put pressure on refiners to lower their prices in recent years, leaving them vulnerable to often-volatile moves in world oil prices.

Cost cutting and restructuring efforts have started to pay off for the nation's refiners,

helping fuel some healthy profit rises in the just-ended business year.

But analysts say their traditional business is unlikely to yield stellar growth in the future because oil's share of total energy consumption has hit a ceiling. Government data show that oil's share in Japan's total energy consumption fell to 52.0 percent in the 1999 business year from 57.4 percent in 1994.

That trend is likely to continue as the government tries to reduce resource-poor Japan's reliance on oil by promoting nuclear energy and cleaner energy such as natural gas and wind power.

"Japanese oil firms desperately need to generate fresh demand for new products," said Yuji Morita, senior analyst at IEEJ.

REFINERS DIG DEEP

Of Japan's major oil firms, Nippon Mitsubishi Oil, unlisted Idemitsu Kosan Co Ltd and Cosmo Oil Corp Ltd are actively developing fuel cell technology, with Nippon Mitsubishi believed to be the leader.

The three firms decline to disclose the scale of their investment in developing fuel cells, but industry sources are confident it is money well spent.

"The investment is by no means small for the industry, but the risk that gasoline stations will be extinct in the future is greater," said Ikuo Hamabayashi, an official of the government-backed Petroleum Energy Centre.

"The basic concept of a fuel cell is already complete. The only things we have to do is commercialize it and make it smaller," he added.

Ballard Power Systems of Canada and Fuel Cell Energy (FCE) of the United States have already started to make the transition from pilot projects to commercial sales. Analysts say Japan is not far behind, and is likely to emerge as one of the leading nations in fuel cell technology.

Cosmo Oil - Japan's third-largest oil refiner by domestic sales - said in April that it had developed a fuel cell using butane gas to generate power for households.

A Cosmo spokesman said butane was an intermediary step and that it hoped to eventually use kerosene, a more widely consumed oil product. It hopes to start mass production as early as 2004.

Costs are still prohibitively high, though. It currently costs about five to six million yen to produce a stationary fuel cell unit for a household system. Analysts estimate that will have to be brought down to about 300,000 to 500,000 yen to make it a viable proposition for households.

40. Daimler, MMC To Cooperate On Clean Diesel Engines

DaimlerChrysler AG and its Japanese partner Mitsubishi Motors Corp will jointly develop environmentally friendly diesel engines for medium-sized to large trucks, according to a Japanese newspaper. DaimlerChrysler, grappling with costs related to major restructuring programs at Mitsubishi and its U.S. Chrysler unit, aims to cut costs and save time in developing diesel engines to meet tightening global emissions standards, the Nihon Keizai Shimbun said.

Automakers have been battling a 2005 deadline and high research and development costs to produce more eco-friendly diesel engines before Japan and Europe are

expected to adopt stringent requirements on carbon dioxide emissions.

Together, the two companies produce 370,000 buses and trucks every year, the most in the world. The venture could also include South Korea's Hyundai Motor, which is 10 percent owned by Daimler, the newspaper said.

Daimler also holds a 37 percent stake in Mitsubishi, after purchasing additional stake in the company after Sweden's Volvo AB abandoned plans for a joint truck venture with the troubled Japanese automaker.

41. Southeast Asia Moving Toward Natural Gas

Natural gas is fast becoming the fuel of choice for power generation in Southeast Asia, where ample reserves offer a clean and indigenous energy alternative to oil and coal. While some regions of the world are re-examining nuclear power for clean and efficient electricity, Southeast Asia is increasingly turning to gas, led by Malaysia and Thailand.

"Natural gas is certainly the fuel of choice in Southeast Asia, but in northern Asia, Japan, South Korea and Taiwan, where they import their energy, there's more of a division in fuels used," says Jenny Cosgrove, utilities analyst at Credit Suisse First Boston (CSFB) in Hong Kong.

Seventy-two percent of Thailand's power generation capacity is fueled by natural gas, while in Malaysia it accounts for 67 percent of capacity, according to a CSFB research report.

Malaysia and Thailand are planning new coal-fired generation plants, but that's largely to diversify fuel sources. "Natural gas will still be

the main fuel for power in the future," says an official with the Electricity Generating Authority of Thailand (EGAT).

Reserves of natural gas, the environmentally friendly option among major fuels in the region, are one factor. Southeast Asia, unlike Japan and South Korea - which are resource deficient and import almost all their energy needs - sits on abundant reserves of gas. Asia-Pacific had 10.3 trillion cubic metres of proven gas reserves at the end of 2000, or about seven percent of the world total, according to BP's latest annual statistical review. Indonesia and Malaysia lead the region with more than two trillion cubic metres each, according to BP estimates.

China follows with 1.37 trillion cubic metres but has done little to tap resources because of a lack of infrastructure, government controls on pricing and a preference for cheaper coal-based power.

Australia sits on about 1.26 trillion cubic metres of gas and has a well-developed domestic market and exports large amounts of gas to Japan and South Korea as liquefied natural gas (LNG).

Fuel oil makes up 87 percent of Singapore's generation capacity, with gas accounting for only 13 percent, according to the CSFB report. Analysts expect the island state to rely more heavily on natural gas in future as new gas plants are built and old generators are converted from oil to gas.

Philippine power generators are also eyeing a switch to gas from fuel oil and most new plants are expected to burn gas. About 38 percent of power capacity in the Philippines uses fuel oil as feedstock at the moment.

Driving the conversion is the Philippines' first gas project, the Shell Philippines Exploration

Camago-Malampaya project off Palawan island. Three power plants that will take gas from Camago-Malampaya are in planning or under construction.

North Asia still relies heavily on coal, seeking a cheap answer to a lack of indigenous resources. Japan, South Korea, Hong Kong and Taiwan use a wide range of fuels for power generation from nuclear to fuel oil to coal due to their reliance on energy imports and the need to secure supplies.

42. Recent Developments in China

A. Green Diesel Initiative

China needs more engines to provide power for the rapid growth in its transportation, construction and automotive sectors. But outdated diesel engines used in the past contributed to the country's air pollution problems and irritated people in traffic. To overcome the diesel engine's bad image in China and to promote modern engines as part of a solution, seven foreign diesel and automobile component producers have inaugurated a "green diesel initiative" in China. The companies include Cummins, DaimlerChrysler, Caterpillar, Isuzu, Bosch, Dana and Volvo Truck. The companies advocate the adoption and strict equal enforcement of emissions standards based on an engine's performance in China. As part of the initiative, the companies will host technical seminars in Beijing, Shanghai, Chongqing and Guangzhou, to disseminate information about modern diesels and their advantages in emissions reduction.

B. VW Making Diesel Push

The German automaker plans to manufacture diesel cars in one of its Chinese joint ventures, Shanghai Volkswagen Automotive Co Ltd, within two to three years. The plan

was announced by Bernd Engelstadter, technical executive director of Shanghai Volkswagen during the Diesel Initiative Symposium on modern engine technology and emission control in Beijing.

Shanghai Volkswagen will co-operate with German engine producer Bosch to produce diesel engines in Shanghai for its cars, said Engelstadter.

"We are committed to transferring modern car diesel technology to China to help the country protect the environment and save oil energy," said Andreas Bastian, senior manager of the research and development department of Volkswagen (China). Bastian said the modern diesel car is a better choice for Chinese customers because it is more efficient, environmentally friendly and economical compared with petrol cars.

All new cars Volkswagen will produce in the country will meet the European II emission standard at least, Bastian said. "But obstacles against our diesel car plan in China have yet to be resolved," Bastian said.

Modern diesel engines are still mistaken for one of the major air pollutants, especially in big cities. Local governments, including those in Lanzhou, Northwest China's Gansu Province, and Jinan in East China's Shandong Province, have banned the use of diesel automobiles to alleviate environmental protection pressures.

The Chinese Government requires all vehicles to meet the European I emission standard by the end of this year.

"Bad quality of diesel oil in China also curbs our diesel car plan," Bastian told the symposium, urging Chinese oil producers to enhance the quality of diesel oil.

Volkswagen will intensify its efforts in promoting the image of the diesel engine and introducing modern diesel technology to China, Bastian said.

The German automaker showcased its three-litre Lupo car equipped with modern turbo direct injection diesel engine during the Fourth International Exhibition of International Combustion Engine Technology and Equipment, on May 25-28 in Beijing. Lupo is the world's first car in production which can run for 100 kilometres on less than three litres of fuel, and satisfy the European IV emission standard.

Volkswagen now has two joint ventures in China and has taken half of the Chinese car market. By the end of last year, the ventures had produced more than 1.7 million cars.

C. Ford Gets Foothold in China's Market

Ford Motor Co set up a US\$98 million joint venture with a Chinese carmaker, capping two years of negotiations and giving the US auto giant a foothold in a burgeoning market for passenger cars. Ford's agreement with Chongqing Changan Automobile Co, the listed arm of China's third largest car maker, will help the company challenge established ventures by General Motors and Volkswagen in a battle for what analysts expect to be a booming segment.

Ford and its China subsidiary will invest US\$49 million in a 50 percent stake in the car venture, Changan Ford Automobile Co, Ford said. The other half would be held by Chongqing Changan and its parent Changan Automobile Group. The joint venture is to be based in China's southwestern city of Chongqing and will develop and manufacture small family cars for the Chinese market.

"China is a big market ... it easily outnumbers most of the markets in Asia, so we are not really concerned about competition," said Kenneth Hsu, spokesman for Ford Motors China. "We are looking at the most popular or the fastest growing segment of the Chinese passenger car market + that is the family market and we are aiming at that segment," Hsu said. He declined to give details of the car model, but said production was likely to begin in a year and the planned capacity was expected to reach 50,000 cars annually.

The world's number two auto maker is a relative newcomer to China's automobile market, unlike rivals GM or market leader Volkswagen, which have billion-dollar plants in the country. The German firm set up its Shanghai venture in the 1980s.

GM set up a US\$1.5 billion joint venture with Shanghai Automotive Industry Corp in 1997 to make higher-end Buicks.

Foreign automakers have been racing to build affordable cars for the growing middle class in China, whose entry into World Trade Organization is expected to ease limits on foreign joint ventures. Analysts expect the family car segment to be at the forefront of a surge in automobile sales in the next few years, fueled by rising urban incomes and government measures to boost consumption which include cuts in fees and backing for car loans. China's passenger car market could reach about two million a year by 2005 from less than a million now, they said.

"The China market is a very promising one because the penetration rate is very low," said John Lu of ING Barings in Shanghai. "The foreign car makers are anxious to get a foothold in the market to build up their brand name. In the car market, brand loyalty is very important," he said.

GM unveiled three compact car models in December and plans to sell 30,000 of its new line of Buick Sail cars this year.

Volkswagen, whose Shanghai joint venture has more than a third of the China market, intends to market a new model within the next two years.

Ford now has five component ventures in China and a 29.96 percent stake in Jiangling Motors, which makes the Transit van. Ford's investment in Jiangling is valued at about \$95 million, a Jiangling official said.

Analysts said the new Ford venture, while smaller than its rivals, was significant.

"The absolute amount of investment is not that key. For example, the GM joint venture is a US\$1.5 billion investment, but it includes an engine manufacturing plant and assembly lines," Lu said.

D. Other

The Toyota Motor (China) Investment Co., Ltd. was recently established in the Tianjin Economic & Technological Development Zone. With a registered capital of \$30 million from Toyota Motor of Japan, the new company will offer central support for Toyota production facilities in China in terms of investment, advertisement, public relations and marketing. It will also provide education and training for employees at Toyota's sales and service facilities. It plans to open up branch offices in Beijing and Guangzhou.

The first joint venture taxi company will be formed in Beijing soon between the local Jinjian Taxi Co. and DelGro Co., Ltd. of Singapore. The new company will have an estimated total investment of \$29.76 million, of which \$24 million will come from the foreign partner. A total of about 3,300 units of taxis

will be available when the company opens for business.

The prices of two models of Wuyang brand motorcycles made by Wuyang-Honda Automobile Co., Ltd. were recently reduced. The WY125-A equipped with imported Honda engine now sells for 8,000 while that equipped with locally made Wuyang-Honda engine sells for 6,000. The WY125-A model is a famous brand in China and cumulative production has reached close to 1 million units.

The Futian Scenic 2001 based on Toyota's Hiace series light bus was recently introduced to the market by the Beiqi Futian Vehicle Co., Ltd.. The 9-seater model is intended to directly compete with the Jinbei Hiace made by Jinbei Bus Manufacturing Co., Ltd., which has about 60 percent of China's light bus market.

Tianjin Xiali Automobile Co., Ltd. recently introduced to the market the Century Square, a new variation of the Xiali (Charade) 2000 series at a price tag of 119,980.

The Xi an Silver Bus Co., Ltd., a joint venture with Volvo, was chosen by the Bank of China as the only coach manufacturer to receive financing on its coaches. In the first five months of the year, Bank of China approved a total of 18.62 million in loans for the Silver bus. Estimated total loans by the end of the year may reach 100 million.

43. New Zealand Proposes Changes to Automotive Fuels Specifications

On 7 August 2001 the New Zealand Government released a Discussion Document on proposed changes to automotive fuels specifications (gasoline and diesel). Changes to properties of most significance from an air quality point of view

are given in the tables below. Three stages of improvements are proposed Immediate (as soon as the new Regulations can be issued, anticipated to be around mid-2002), Stage 1 (2003-2004), and Stage 2 (2006-2007).

With only one refinery in the country, supplying two thirds of the gasoline used and about 90% of the automotive diesel, it seems a little strange that a multi-step program is required to achieve some of the product improvements. The refinery is a middle distillate refinery, primarily configured for the production of jet fuel and diesel. Gasoline is largely produced from long-standing hydroskimming facilities, and as such it is already a relatively good quality product. It seems unnecessary therefore to have more than one step in the quality improvement program. Diesel production is more complex, and involves a high vacuum unit, a hydrocracker, and a (undersized)

hydrodesulfurizer. Hence a two-step improvement program is somewhat more logical for diesel.

The New Zealand Government is calling for submissions on the Discussion Document from interested parties and the general public before 15 October 2001. Apart from the too many steps issue mentioned above, other aspects likely to draw negative feedback are the still high sulfur contents of both gasoline and diesel after the completion of Stage 2 (50 ppm, rather than a more appropriate 10-15 ppm), a continuing high Reid vapor pressure for gasoline (with at least one Regional Council keen on a lower summer time value), and an apparent acceptance that ethanol can replace MTBE as an oxygenate for gasoline (with no consideration of whether the integrity of gasoline storage tanks are such as to require a ban on MTBE).

Changes to Gasoline Specifications under Consideration

Property	Current Limits	Immediate	Stage 1	Stage 2
Research octane number (RON)	Premium 95.0 min Regular 91.0 min	No change to RON and MON requirements for Regular and Premium grades.		
Motor octane number (MON)	Premium 85.0 min Regular 82.0 min			
Flexible Volatility Index [RVP (kPa) + (0.7 x E70)] (Specifications cover broad range of summer and winter grades)	77.5 minimum 115.0 maximum	Remove minimum FVI limit, replace with RVP limits (see below). Retain current maximum FVI limit, review later.		

Reid Vapor Pressure (kPa) [New property]		85 maximum (Summer) 90 maximum (Spring & Autumn) 95 maximum (Winter) Test method ASTM D 323	75 maximum (Summer) 85 maximum (Spring & Autumn) 95 maximum (Winter)	65 maximum (Summer) 80 maximum (Spring & Autumn) 95 maximum (Winter)
Sulfur (percentage mass)	0.05 maximum [equivalent to 500 ppm]	150 mg/kg (ppm) maximum Specify ASTM D 5453 (Ultraviolet fluorescence) as test method for sulfur.		50 mg/kg (ppm)
Lead (grams per litre)	0.013 maximum (13 mg/litre)	0.005 maximum (5 mg/litre)		
Total aromatic compounds (including Benzene) percentage volume)	48 maximum	Premium or higher grades		
		No change		42 maximum
		Regular grade (defined as gasoline with RON <95)		
		40 maximum		
Benzene (% mass)	5 maximum	4 maximum (percentage volume)	3 maximum (percentage volume)	1 maximum (percentage volume)
Oxygenates (percentage mass) (Does not apply where the added oxygenate is methyl tertiary butyl ether (MTBE). Up to 11 percent volume MTBE may be added.)	0.1 maximum	Retain limit for total oxygenates, excluding MTBE and ethanol. Allow 1% maximum (percentage by volume) for MTBE (as contaminant). Consider allowing 10% maximum (percentage by volume) for ethanol on a test basis, subject to an approval process.		

Olefins (percentage volume)	Not currently regulated	25 maximum To apply to all gasoline Test method ASTM D 1319	21 maximum	18 maximum
Manganese	Not currently regulated	0.25 mg/litre maximum To apply to all gasoline Test method ASTM D 3831 (Atomic Absorption Spectroscopy)		
Phosphorous	Not currently regulated	0.20 mg/litre maximum To apply to all gasoline Test method ASTM D 3231		

Changes to Diesel Specifications under Consideration

Property	Current Limits	Immediate	Stage 1	Stage 2
Cetane Number, or	45 minimum	49 minimum	51 minimum	
Cetane Index	47 minimum	47 minimum		
Sulfur (percentage mass) (Limit for sulfur does not apply to sale for marine use)	0.30 maximum [equivalent to 3000 ppm]	Under consideration Specify ASTM D 5453 (Ultraviolet fluorescence) as test method for sulfur	500 mg/kg (ppm) maximum	50 mg/kg (ppm) maximum
Polycyclic aromatic hydrocarbons (PAH)	Not currently regulated	No limit proposed at this stage	11 percent maximum by mass, to apply to all diesel Test by ASTM D 5186 (Supercritical Fluid Chromatography Method) or IP 391 (High Performance Liquid Chromatography Method)	

Lubricity	Not currently regulated	460 µm maximum HFRR wear scar diameter at 60°C Test by IP 450		
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44. Essence of the Revised NOx Law in Japan

First of all, it is important to understand that this is a Law, which means that exact designated area of NOx and PM and exact number of permissible limits for NOx in NOx area or PM permissible limit in PM area will be decided by cabinet order or ministerial ordinance. Thus the Law can only give a notion of the regulation scheme.

The Government will designate the NOx areas and PM areas which are especially polluted. Needless to say, the NOx areas and the PM areas are not necessarily the same but in many cases there will be overlap.

The most important element of this law is that the permissible limits will be set for both NOx and PM, although at levels which are more lenient than required for the newly made vehicles. If the vehicles are too old to pass the permissible limits, the vehicles cannot be used in the NOx and/or PM areas.

The enforcement method is vehicles inspection which is required by law every other year or every year depending on type of vehicles. If the vehicles are too old to pass the permissible limit, the certificate will be confiscated.

Another important element of this law is that if the business base has more than a certain number of vehicles, that business should submit a NOx reduction plan when the base is in the NOx area, and a PM reduction plan in PM area (both NOx and PM reduction plan if

the area is designated both NOx and PM area). The plan includes the introduction of Low Emission Vehicles, efficient cargo transport plan, etc..

PM and NOx areas and permissible limits for in-service vehicles are now under consideration by the Ministry of Environment with consultation with concerned ministries including Ministry of Land, Infrastructure and Transport.

GENERAL

45. Heart Attack Risk Seen From Small Particles

Exposure for as little as two hours to elevated levels of fine particulate air pollution - the kind in automobile emissions - raises the likelihood of heart attack, especially among people already at risk for cardiac disease, according to a recently published report.

Researchers tracked pollution levels in the Boston region and interviewed 722 people about four days after they entered area hospitals with a heart attack in 1995 and 1996. They found that the patients experienced a 48 percent rise in heart attack risk in the two hours after exposure to high levels of this type of invisible air pollutants. The patients experienced an increased risk even 24 hours after exposure.

High amounts of fine particulate air pollution are present typically during very hot, hazy summer days, said Dr. Murray Mittleman, director of cardiovascular epidemiology at Boston's Beth Israel Deaconess Medical Center, who led the study.

He said people who have heart disease or an elevated risk of heart attack should avoid going outside for long stretches when air quality is poor, and said air conditioning can screen out some of the tiny particles.

The study appears in the journal *Circulation*, published by the American Heart Association. This type of pollution is produced by combustion processes in automobile engines, power plants, refineries and smelters, added Douglas Dockery, professor of environmental epidemiology at the Harvard School of Public Health and a study co-author.

The particles are less than 2.5 micrometers (2.5/1,000ths of a millimeter) in size. Dockery said larger particles such as airborne dust and debris from farming, construction work and mining are far less likely to trigger a heart attack.

They are so small that after being inhaled, they can evade the normal defense mechanisms in the lungs and penetrate deeply into the lung's air sacs, the researchers said. Their presence there can trigger a systemic inflammatory response that can be detected as high levels of a certain protein associated with an increase in heart attack risk.

The researchers also said exposure to high levels of air pollution also increases the likelihood of the formation of blood clots and restricted blood flow. In the elderly, air pollution has been associated with quickened heart rates.

Many other cities have higher levels of fine particulate air pollution than Boston, meaning people in those places could be in more danger, the researchers said.

Mittleman said previous studies linked exposure to particulate air pollution to

heightened risk of cardiovascular diseases, but the new study is the first to look at short-term effects of air pollution on the risk of heart attack.

The researchers also measured for other pollutants including ozone, carbon monoxide, sulfur dioxide and nitrogen dioxide, but failed to find any statistically significant increase of risk for heart attack.

46. GM Moving Toward Fuel Cell Vehicles

General Motors has announced an investment in a hydrogen-storage company that the automaker said would speed up the development of vehicles using fuel cells instead of gasoline-powered engines.

GM, the world's largest automaker, said it will take a 20 percent stake in Quantum Technologies, a unit of alternative fuel technology specialist Impco Technologies Inc...

GM and other automakers have invested billions of dollars in fuel cell research, even though the technology may be years away from practical use. Several technical problems remain unsolved, especially with handling and storing hydrogen, which is several times more flammable than gasoline and burns without a flame.

Despite those problems, GM has said it expects to offer its first fuel cell vehicle for sale to the retail public by the end of the decade, and has set a goal of becoming the first automaker to sell one million fuel cell vehicles.

With governments and environmentalists pressuring automakers to reduce pollution created by their products, fuel cells are seen by many as the ultimate solution.

THE HOLY GRAIL

Current vehicles with fuel cells storing hydrogen at a pressure of 2,500 to 3,000 pounds per square inch (psi) can travel about 100 to 150 miles before refueling, compared to 350 to 400 miles for a vehicle with the traditional gas-powered internal combustion engine. But Quantum has developed a hydrogen storage tank, coated with a shell similar to the material used in bulletproof vests, which can safely store hydrogen at 5,000 psi, extending the driving range to 175 to 250 miles, said Quantum. By the end of the year, the company will have available a tank that stores hydrogen at 10,000 psi, increasing the range to 300 to 500 miles.

Fuel cell propulsion systems are now about 10 times more expensive than an internal combustion engine, making them prohibitively expensive, but the costs are coming down.

GM and Quantum will also work on other means of storing hydrogen, such as in liquid form or metal and chemical hydrides.

The automaker is also collaborating with Toyota Motor Corp. and Exxon Mobil Corp. on fuel cell research.

47. GM Also In Deal To Develop Fuel Cell Infrastructure

General Motors also announced that it has signed a 25-year agreement to help speed the development of a refueling infrastructure to support fuel cell vehicles, which are expected to arrive on the market in the next decade.

General Hydrogen was founded by Geoffrey Ballard, who also created Ballard Power Systems, which has partnered with Ford Motor Co. and Daimler Chrysler AG to develop fuel cells.

GM's deal with Ballard's new company will focus on several areas including hydrogen storage, refueling, advanced materials and electric power production.

"General Hydrogen and General Motors will work together to bring about a global hydrogen infrastructure capable of supporting large numbers of zero-emission hydrogen fuel cell vehicles," Ballard said in a statement.

48. Polluted Clouds May Bring Cooling

As greenhouse gases in the atmosphere warm up the Earth, clouds that contain air pollution particles may provide patchy cooling in some parts of the planet, researchers said in a new study. Clouds reflect much of the sun's heat into space, and therefore are critical to interpreting the planet's changing climate picture, according to the study in the journal *Science*.

Clouds are formed as water droplets condense around particles in the atmosphere. The study expands the list of particles that affect cloud formation to include emissions from human activities.

Soluble gases and organic pollutants that are only slightly water-soluble influence droplet formation in ways not previously understood, the study says. This translates to more and smaller droplets, creating greater surface areas on clouds to reflect sunlight away from the Earth.

"This (finding) is a complication that adds into the increasingly long list of things that human activity has done to the global atmosphere," said Robert Charlson, professor of atmospheric sciences and chemistry at the University of Washington, and lead author of the study.

"The greenhouse effect works 24 hours a

day," Charlson said. "The 'sunlight effect' only works on the sunny side of the Earth, so they cannot simply compensate each other."

The Sichuan basin of China appears to be especially affected by these polluted clouds, which provide greater cooling than normal cloud cover, the study says. Other areas are affected, Charlson said, but no global mechanism is in place to measure the "sunlight effect."

A computer model developed at the California Institute of Technology measured how the reflectivity of clouds changes when various factors are introduced, according to the study.

"When you get so much pollution in the air, it influences the formation of clouds," he said.

The findings modify a theory of cloud formation developed in the 1920s to include soluble gases, such as nitric acid gas, and organic materials, such as smoke from forest fires and garbage incinerators, according to the study. The earlier theory assumed particles in the air were composed of a completely soluble salt, but did not account for soluble gases and organic pollutants. The new study found these pollution particles are critical to droplet formation.

Certain types of pollutants, like the unburned organic matter from a forest fire, are somewhat soluble in water, Charlson said. When they dissolve in water they change the surface tension, behaving somewhat like soap in water. The result is more droplets.

Invisible soluble gases, such as the nitric acid from photochemical smog, dissolves in the water in clouds and encourages more droplets to form.

49. Shell Extends Clean Energy Push

Royal Dutch/Shell said it would renew its renewable energy investment program with a further \$500 million to \$1 billion spending earmarked for the next five years. The Anglo-Dutch oil and gas giant's existing five year \$500 million spending plan is due to end in autumn 2002.

Though significant for the nascent clean energy sector, the \$100 million a year spend is small in relation to Shell's annual capital spending budget, which exceeds \$10 billion. In a summary prepared for a presentation to analysts, Shell Renewables said the continued investment would focus mainly on solar power, through a joint venture with German engineering group Siemens, and wind power.

Shell Renewables said it had joined the "top tier players in the solar photovoltaics industry" with a 15 percent market share through its Siemens Solar venture, in which it holds a 33 percent share.

"The key objective for the solar business is to grow in line with the market, currently growing at around 25 percent a year, Shell said. In the wind business, Shell is focusing on developing and operating wind farms, and selling so-called "green" electricity.

Shell said it was currently participating in two trial projects totaling eight Megawatts (MW) of wind generating capacity, and that projects were being evaluated in the UK, Netherlands, Morocco and the USA totaling 400 MW.

50. Bahrain To Invest \$660m On Low Sulphur Diesel

State-owned Bahrain Petroleum Company (Bapco) plans to build a new hydrocracker and upgrade the existing one to produce low sulphur diesel at a cost of \$660 million, Chief Executive Johann Lubbe announced recently.

Lubbe said that the project was part of expansion programs at the ageing Sitra Refinery expected to cost around \$900 million.

"The most significant project, at a cost of \$660 million, will enable Bapco to produce transportation diesel of the highest quality in terms of sulphur levels and cetane index. Additional high quality jet fuel can also be produced," he said.

"We have changed the configurations. Bapco will now build a new hydrocracker as part of the project because we want to make various specifications of diesel," Lubbe said.

Bapco officials have earlier said the project to reduce the amount of sulphur in diesel oil to 0.05 percent from the current level of about 0.5 percent would cost \$560 million. "The building of a new hydrocracker has changed the cost," Lubbe said. "Another (existing) hydrocracker will also be upgraded," he added.

Bapco runs the refinery, which was built in 1936 and has a refining capacity of 250,000 barrels per day (bpd).

Lubbe said the new hydrocracker, with a production capacity of 40,000 barrels per day (bpd) would be built next to the existing one, which has a production capacity of 45,000 bpd. He said the project, involving upgrading some equipment and replacing older units, would extend the life of the refinery beyond 2015.

"Further upgrading will be required as dictated by product specification changes and environmental considerations," he added.

Lubbe said the current upgrading of the plant was targeted to cater to market need over the next decade. "As far as the market is

concerned, we expect that the market will change again after 2010," he said.

Lubbe said Bapco's current main fuel products are gasoline and middle distillate, including diesel and jet. "Around 55 percent of our products are middle distillate," he said.

After the low sulphur diesel project is completed, Bapco's product of middle distillate will increase to around 58 percent, he added.

Bahrain, a small and independent oil producer, pumps around 40,000 bpd from its own fields and imports around 200,000 bpd from Saudi Arabia for refining.

The Gulf Arab state also gets the entire output of 140,000 bpd from an offshore field it shares with Saudi Arabia. Traders said Bahrain sells the crude in the international market.

51. UNEP Chief Praises Kyoto Deal But Notes It Won't Meet Target

An international pact struck in Bonn aimed at reducing global warming will not meet original targets for cutting emissions, according to Klaus Toepfer, head of the U.N. Environment Program. However, he said the Kyoto Protocol reached in Bonn would serve as an important base for future agreements.

"I'm not blue-eyed enough to think this isn't really a compromise, but I am absolutely convinced that this is a very important basis for the future fight against global warming," Toepfer said at a news conference during a visit to Mexico.

"Flexible mechanisms," seen by environmental activists as loopholes in the treaty, include measures like the right to buy and sell permits to pollute, known as trading emissions. Countries are also allowed to

offset the carbon stored in their forests - known as "carbon sinks" - against their carbon dioxide emissions targets.

Greenpeace has calculated that the flexibility mechanisms agreed at the summit could mean emissions actually rise instead of fall in the next decade. Toepfer said he did not believe emissions would rise but conceded they would not fall as much as targeted under the Kyoto agreement. "I don't believe there will be an increase in emissions but a lower decrease because of ... the (carbon) sinks," he said.

As for the United States' failure to sign up to the Kyoto deal, based on the original treaty discussions in Kyoto, Japan in 1997, Toepfer said the door was wide open for the United States to join. He said the U.S. government had highlighted its intention to work with certain nations, including Mexico and El Salvador, on a bilateral basis to reduce greenhouse gas emissions.

The United States is the world's biggest polluter, accounting for 36 percent of carbon dioxide emissions among developed nations. For the Kyoto agreement to take effect, countries accounting for 55 percent of the 30-odd wealthy industrial nations' carbon dioxide emissions must ratify the treaty.

Toepfer said developed nations, the biggest polluters, had a responsibility to help developing nations with funding and technology to counter the climate changes which have impacted developing countries the most. Of the world's six billion population, one billion people were consuming 46 percent of global energy, he said.

Reviewing the past 10 years since the landmark Rio de Janeiro environmental summit in 1992, he noted: "It was not a decade of success for the environment ... nor

for the poor people of the world. The gap between rich and poor broadened."

52. GM Touts Fuel Cell For Homes, Businesses

General Motors, the world's largest automaker, has unveiled a hydrogen fuel cell it said could be the answer to burgeoning demand for electricity in homes and businesses worldwide. It described the stationary fuel cell - a device similar to those being developed by other smaller companies as well - as a clean, quiet, ultra-efficient power generator that could serve as a reliable backup for housing developments, businesses and hospitals at risk of losing power because of blackouts.

In GM's view, the fuel cell, which runs on natural gas, could also make many U.S. homes or small businesses virtually independent of the electricity grid. Fuel cells, already seen as the most likely successor to the gas-guzzling internal combustion engine, produce electric power from hydrogen and oxygen without combustion.

GM said it had not yet made any business decisions based on the development of its stationary fuel cell, which GM said was likely to become cost effective and commercially available by around 2005. But several companies have already offered to cooperate in commercial applications of the technology, GM officials said.

GM, which along with other automakers hopes to begin mass production of fuel cells for the auto industry by around 2008, has set a goal of becoming the first automaker to sell 1 million fuel-cell vehicles. Underscoring that commitment, GM rolled out a prototype of the Chevrolet S-10 pickup truck at its news conference here that it said was the world's first ever gasoline-fed fuel cell vehicle. Burns

said the pickup, which gets about 50 percent better fuel economy than an S-10 powered by a conventional internal combustion engine, was one of several gasoline-based, experimental fuel cell vehicles GM was working on.

There are still obstacles to practical use of fuel cell technology by the automotive sector, however, including high costs and the handling and storage of hydrogen, which is far more volatile than gasoline. In the meantime, Burns said, production of fuel cells in smaller volumes, for use outside the auto business, could help pave the way toward wider public acceptance, while building industrial expertise about issues such as durability and manufacturing.

Ford Motor Co. and DaimlerChrysler AG are among other automakers, partnering in their case with Vancouver-based Ballard Power Systems, that are gearing up to produce fuel cell products for uses outside the auto industry.

And General Electric has an agreement to distribute fuel cell generating units for home or small business applications with Plug Power, a Latham, New York-based manufacturer.

But with a \$183 billion company backing the development and commercialization of stationary fuel cells, informed observers said GM was giving the green power-generator a much higher profile than ever before.