



CONFIDENTIAL

CF  
PPS

219/7

2 MARSHAM STREET  
LONDON SW1P 3EB  
01-276 3000

My ref:

Your ref:

Charles Powell Esq  
Private Secretary to  
The Prime Minister  
10 Downing Street  
LONDON  
SW1A 2AA

19 July 1989

Dear Charles

for E with CAT

Thank you for your letter of 13 June to Roger Bright seeking our advice on this telegram from President Bush (flagged A) to US clean air policies. The President's proposals represent a welcome step forward in environmental protection after a period of stagnation. He wrote about them only to the Prime Minister and to President Mitterand, President of the EC and host for the Paris Summit. I think therefore that the Prime Minister will want to respond warmly and I attach a draft reply (at B).

You may also like to see the attached commentary on these proposals (at C) and an explanatory paper put out by the White House (at D).

It is difficult to make any overall comparison between the tightness of air pollution controls in the US with those in the UK. Per capita emissions of major pollutants such as NOx, SO2, CO2, volatile organics and CO2 are all higher in the USA than the UK, in some cases very much higher. However, to a considerable extent this reflects greater travel distances, climate differences and consumer habits. The American approach is based much more on absolute air quality standards than ours; we look first for practicable ways of tackling particular problem processes. Both approaches have their merits, but the difference complicates comparisons. The US has for good reasons been much more concerned about vehicle emissions than we have, and there are some interesting proposals in this area and on emission trading.

The new US legislation is concerned with relatively traditional air pollution concerns, rather than the global issues of climate change and the ozone layer. Nevertheless, I recommend that the Prime Minister refer to our collaboration on climate change. The US is chairing one of the three Working Groups of the Inter-Governmental Panel on Climate Change - the one on Response Strategies, and is putting a good deal of energy into it. And, following our decision

CONFIDENTIAL

to increase our funding to UNEP, the parent body of the IPCC, from £1.25m to £3m, they have increased theirs from \$8m to \$9.5m. This is particularly welcome news since we had feared that domestic political pressure would cause them to reduce payments to UN bodies. One of our chief concerns about the IPCC is to secure adequate participation by developing countries. We have been able to contribute an additional £25,000 to IPCC for this purpose, which has been very well received, and the increased US contribution should help further UNEP efforts.

I am copying this letter and enclosures to Stephen Wall (Foreign and Commonwealth Office), Alex Allen (HM Treasury), Stephen Haddrill (Department of Energy) and Trevor Woolley (Cabinet Office).

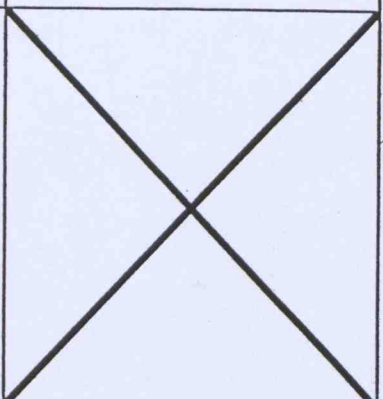
Yours

KES Bush

KATE BUSH  
Private Secretary



# A The National Archives

DEPARTMENT/SERIES ..... <i>PREM 19</i> ..... PIECE/ITEM ..... <i>2657</i> ..... (one piece/item number)	Date and sign
Extract details:  <i>Attachments to Bush to Powell dated 19 July 1989</i>	
CLOSED UNDER FOI EXEMPTION .....	
RETAINED UNDER SECTION 3(4) OF THE PUBLIC RECORDS ACT 1958	
TEMPORARILY RETAINED	<i>1/8/2016</i> <i>G. Gray</i>
MISSING AT TRANSFER	
NUMBER NOT USED	
MISSING (TNA USE ONLY)	
DOCUMENT PUT IN PLACE (TNA USE ONLY)	

## MAIN FEATURES OF PRESIDENT BUSH'S CLEAN AIR PROPOSALS

## I. ACID RAIN

1. Sulphur dioxide (SO<sub>2</sub>) emissions would be reduced by 10 million tonnes per annum by the year 2000, compared to a baseline year of 1980. 1980 emissions were 23.9 million tonnes (UK 4.8mt) and 1986 (the latest available data) 21.2mt (UK 3.9mt) or 88kg/capita compared to 68kg/capita in the UK. So 27% of the target had already been achieved by 1986.
2. 5 million tonnes of this reduction would be required to be achieved by 1995.
3. Nitrogen oxides (NO<sub>x</sub>) emissions would also be reduced by 2 million tonnes per annum by the year 2000. But no base year is quoted. 1980 emissions were 20.3 million tonnes (UK 2.3mt) and 1986 (latest available data) 19.3mt (UK 2.2mt) or 80kg/capita compared to 39kg/capita in the UK. So, if the base year is 1980, 50% of the target had already been achieved by 1986.
4. However, utilities would be able to trade reductions in NO<sub>x</sub> emissions for reductions in SO<sub>2</sub> emissions (or vice versa). In other words, the overall aim would be a 12 million tonne/annum reduction in the total NO<sub>x</sub> plus SO<sub>2</sub> emissions.
5. The emission reductions would be achieved by setting emission standards which all plants above a certain size in affected states would be required to meet. The standard in phase I (to 1995) would be set at 2.5 lbs per million BTU and would be tightened in phase II (to 2000) to approximately 1.2 lbs per million BTU.
6. Plants would be left to make their own decisions as to how they would meet the emission standards. Their options would obviously include fuel switching, installation of scrubbers or adoption of new "clean coal" technologies.
7. The plan would also allow utilities to trade the required reductions so that they could be achieved in the least costly fashion. A plant operator who had achieved a level of emission which was better than the standard would therefore presumably be able to sell a pollution "credit" to another operator who could use it to offset emissions which exceeded the standard. In phase I, trading would only be allowed among electricity plants within a state or within a utility system. But full interstate trading would be allowed in phase II.
8. The phase II deadline would be extended for three years for plants adopting clean coal repowering technologies. Regulatory incentives would also be introduced to help these technologies penetrate the market place.
9. The estimated cost of these proposals would be \$700m per annum in phase I rising to \$3.8bn per annum in phase II, representing an increase of over 2% in the US's total electricity bill. (In practice, though, some local electricity price increases would be higher as they would depend on what expenditure was incurred by the local utility to meet the emission standards).

Action in the UK

10. The UK in 1988 agreed with EC partners the Large Combustion Plants Directive. This commits member states to reducing their SO<sub>2</sub> emissions, from pre-1987 plants over 500MW, by 20% (base year 1980) by 1993, 40% by 1998 and 60% by 2003 - broadly similar to the US proposals. NO<sub>x</sub> emissions will be similarly reduced by 15% by 1993 and 30% by 1998 - more challenging than the US proposals. New plants will have stringent SO<sub>2</sub> and NO<sub>x</sub> emission limits.



11. Implementation will cost around £2 billion. Most of the burden will fall on CEGB and its privatised successors, because they contribute about 85% of the pollution involved. Refineries and other industries will take a small share. As in the US, it will be for companies in consultation with HMIP to judge how to meet standards eg (in the case of SO<sub>2</sub>) through flue gas desulphurisation, fuel switching or use of low-sulphur (ie imported) coal. But the electricity supply industry has been told by the Department of Energy to budget for at least 12,000MW of FGD (the equivalent of 6 large stations) to limit coal imports. DEN is now assessing the impact of this programme on electricity prices.

12. DOE will shortly issue a consultation paper on implementing LCPD. The forthcoming environment protection Bill will contain powers for the Secretary of State to set emissions targets for industry, and for HMIP to monitor and enforce these through company- and plant-level authorisations.

13. The UK (like the USA) has also signed the 1988 Sofia Protocol to the 1979 UN/ECE Convention on Long-Range Transboundary Air Pollution. This commits signatories to freeze national NO<sub>x</sub> emissions by 1994 at no more than 1987 levels, and to agree limits from 1996 onwards based on "critical loads" calculations of what levels of pollution local environments can tolerate. Work is now in hand to gather the necessary data on causes and effects, on the basis of which NO<sub>x</sub> - and SO<sub>2</sub> - standards can be reviewed and possibly tightened.

14. The US is so far the only country to experiment with emissions trading. Others have found charging systems easier to reconcile with their legal and financial structures. A study of charging systems in EC countries has recently been completed. While such systems are not very far developed in the UK, it is proposed to introduce cost-recovery charging across the field of environmental protection. Any use of market mechanisms to control pollution would have to operate within the regulatory system, taking account of the need to protect local environments as well as achieving national standards. Emissions trading systems also raise questions about the "licence to pollute" which have yet to be resolved even in the US. We considered introducing emissions trading for the implementation of the large combustion plants directive, but concluded that the company-based procedure we are adopting was more robust and would provide almost all the available economic benefits, while allowing financial transactions in the very peculiar existing plant market (Natpower and Powergen will between them inherit 85% of the emissions) would raise enormous complications.

## II. URBAN AIR QUALITY

15. Volatility requirements for gasoline during the summer months would be tightened further so as to reduce emissions of volatile organic compounds (VOCs) by an estimated 8%. The US emitted 19.5 million tonnes of VOCs in 1986 (latest available data) and the UK 2.3mt. That is, 81kg/capita compared to 41kg/capita in the UK.

16. Further reduction in VOC emissions would be achieved by:

- i. reductions in vehicle evaporative emissions caused by automobile running losses (4.2%);
- ii. federal regulations to control emissions from treatment, storage and disposal of hazardous waste (3.2%);
- iii. EPA regulation of emissions from small sources and consumer products, such as consumer solvents and paints (2.5%);



- iv. tightening hydrocarbon emission tailpipe standards for automobiles from 0.41 to 0.25 grams per mile (0.4%);
- v. a first-time requirement for light duty trucks to meet a tailpipe standard of 0.41 grams per mile (0.2%);
- vi. expanded vehicle inspection and maintenance programmes in seriously polluted areas (1.2%);
- vii. a requirement for gasoline stations to instal special nozzles on gasoline pumps in seriously polluted areas to reduce evaporative emissions which occur during refuelling (up to 2% in such areas);
- viii. control technology guidelines for major stationary source emitters, ie factories and plants (3.5%).

17. The use of alternative "clean" transport fuels such as methanol, natural gas and ethanol is also proposed in those areas of the country where ozone pollution is worst. In particular, measures would be taken to ensure the sale of 500,000 "clean-fuelled" vehicles in 1995 building up to 1 million of them being sold each year from 1997 to 2004. The metropolitan areas included in this plan would be Los Angeles, Houston, New York City, Milwaukee, Baltimore, Philadelphia, Greater Connecticut, San Diego and Chicago. However, if these areas were able to demonstrate that they could achieve comparable reductions in emissions of VOCs (and toxic chemicals like benzene, toluene and xylene) by other means, then they would be able to opt out of the clean-fuelled vehicle and alternative fuels programme, in which case the target numbers for sales of clean fuelled vehicles would be scaled down proportionately.

18. The 20 or so cities with the most serious ozone pollution problems would also be required to take additional steps to cut ozone-causing emissions by 3% per year.

19. As in the case of acid rain causing emissions, the EPA would develop regulations to provide companies with the maximum flexibility in achieving the VOC emission reductions. These regulations would allow automobile manufacturers to engage in "emissions trading" and refiners to engage in "fuel pooling", provided that they were able to demonstrate to the EPA that the net effect would be the same emission reductions as called for in the President's plan.

20. Overall, these measures would be expected almost to halve emissions that cause urban ozone and to bring all but the three most seriously polluted areas (Los Angeles, Houston and New York) within health standards for ozone by the year 2000.

21. When fully implemented, the measures would be expected to cost the economy \$3 to \$4 billion per annum.

#### Action in the UK

22. The UK agreed with its EC partners on 9 June new emission standards for cars which will require all new cars sold from 1993 onwards (and many before then) to be fitted with catalytic converters. Emissions of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx) from each car will be drastically reduced. But carbon dioxide (CO2) - the major "greenhouse" gas) will not. Following UK pressure the Commission will prepare proposals for reducing CO2 emissions eg through promoting greater fuel efficiency. The standards - similar to those already in force in the US - will cost UK industry an extra £1½ billion a year.



23. Volatile organic compounds (VOCs) are hazardous in their own right (in which capacity HMIP is responsible for controlling emissions from industry) and in their ability to combine with NOx to generate photochemical oxidants - ozone, PAN, hydrogen peroxide etc - damaging human health (eg respiratory difficulties) and vegetation. Besides action on NOx and HCs referred to above, the UK has an extensive ozone monitoring network and research programme to identify sources and clarify options for control. The UK is contributing to the work of UNECE, and of the EC which is considering community legislation.

24. 80% of lead in air comes from motor vehicles. Over 20% of motorists now use unleaded petrol (compared to 1% last year) as a result of tax concessions and publicity by the Government, industry and voluntary organisations.

25. Petrol and diesel engined vehicles can meet the tough new car emission standards mentioned above. But alternative fuels would need to be considered if the UK wished to go substantially further. Liquefied natural gas, liquefied petroleum gas, methanol and ethanol offer the potential to reduce air pollution (emitting less NOx, CO and other pollutants) and cut "greenhouse" gas emissions (lower carbon/hydrogen ratio, emitting less CO2). There is no Government programme at present to develop or promote such fuels: it is for industry to consider market opportunities. It has considered fuels such as natural gas and alcohol (in the context of EC surpluses) but has not so far concluded that technical or market conditions justify major R&D expenditure.

### III. CARBON MONOXIDE

26. The US emitted 60.9 million tonnes of CO in 1986 (latest available data) compared to 5.1mt for the UK. That is, 253kg/capita compared to 89kg/capita in the UK.

27. Those cities with the most serious carbon monoxide problems would be required during the winter to use gasoline blended with oxygenated fuels, ie ethanol, methanol, ETBE or MTBE. But they would be able to opt out of this requirement if they could demonstrate to the EPA that they could attain the carbon monoxide standard using other measures.

28. EPA would also issue regulations for a carbon monoxide cold temperature standard so as to reduce carbon monoxide problems when motor vehicles are started in exceptionally cold weather.

Action in the UK - see para 22 above.

### IV. PARTICULATE MATTER

29. The US emitted 6.8 million tonnes of particulate matter in 1986 (latest available data) compared to 0.3mt for the UK. That is, 28kg/capita compared to 5kg/capita in the UK.

30. Reasonably available control measures would be required to be adopted to meet existing particulate matter standards. Steps would also be taken to ensure that most cities meet the standard by 1994, and all do by 2001.

Action in the UK

31. A proposed EC directive on particulate emissions from HGVs is at an advanced stage, with the UK taking an active role.



## V. TOXIC AIR POLLUTANTS

32. A schedule would be established for regulating major sources of toxic air pollution which would require the EPA to publish regulations for controlling ten source categories within two years building up to regulations controlling all necessary categories of air toxics within ten years. These standards would be based on the best technology currently available to cut pollution, although there would be some exceptions to add flexibility for those who had already reduced most air toxics and for very small plants. In addition, voluntary earlier reductions would be encouraged by allowing them to be credited against reductions subsequently required by regulation.

33. After these regulations had been established, the EPA would also be required (in phase II) to assess whether there was any need for further controls to prevent the public from being exposed to "unreasonable risk", although they would be allowed to take into account considerations of cost and technical feasibility as well as health risks.

34. These proposals would be expected (in the first phase) to cut emissions pollutants suspected of causing cancer by 75 to 90%. Annual costs would be around \$2 billion per annum.

### Action in the UK

35. Hitherto the US has had to prove an airborne chemical unsafe before banning it. It has succeeded in banning few of the chemicals - several hundred in number - that it considers unsafe. Here HMIP has power not only to ban substances that it regards as dangerous (and it will receive wider powers in the environmental protection Bill) but also to control any of the other substances produced by 3,300 scheduled processes. Producers must minimise emissions and render them harmless, using Best Practicable Means (to be redefined as Best Available Technology Not Entailing Excessive Cost: BATNEEC) to which the US "Maximum Available Control Technology" appears to correspond.

36. As with other US proposals, the details, and methods of implementation, are still unclear, and the proposals are likely to be amended in their passage through Congress. We shall watch developments and consider the implications for the UK.

British Embassy, Washington  
Air Quality Division, DOE

July 1989



THE WHITE HOUSE

Office of the Press Secretary

D  
Mr. Hurlb

For Immediate Release

June 12, 1989

FACT SHEET:

PRESIDENT BUSH'S CLEAN AIR PLAN

Fulfilling a major campaign commitment, President Bush today proposed a comprehensive program to provide clean air for all Americans.

The President's plan calls for the first sweeping revisions to the Clean Air Act since 1977, and represents the first time an Administration has put forward a proposal since that time.

The President's plan is designed to curb three major threats to the nation's environment and to the health of millions of Americans: acid rain, urban air pollution, and toxic air emissions.

While emissions of some pollutants -- such as sulfur dioxide, urban ozone, and carbon monoxide -- have been reduced since passage of the 1970 law, progress has not come quickly enough. The President's plan will dramatically accelerate the pace of pollution reduction and put America on the path toward markedly cleaner air by the end of the century.

The President's plan will:

- o Cut sulfur dioxide emissions virtually in half by the year 2000. The plan calls for a 10 million ton reduction in SO<sub>2</sub>, and a 2 million ton cut in nitrogen oxide (NO<sub>x</sub>) emissions, for a total reduction of 12 million tons in acid-rain causing emissions.
- o Bring all cities currently not meeting the health standards for ozone and carbon monoxide into attainment. Most cities will attain the standard by 1995, and the plan is designed to ensure attainment in all but the most severely impacted cities by the year 2000.
- o Require factories and plants emitting toxic compounds into the air to employ the best technology currently available in order to achieve in the near term a cut estimated at 75 to 90 percent in pollutants suspected of causing cancer. Taken together with efforts to reduce cancer-causing emissions from cars and trucks, it is estimated that the plan will eliminate in its first phase over three-fourths of the annual cancer deaths that air toxics are suspected of causing.



### Fundamental Principles

Five goals underlie the President's clean air proposals and the means for accomplishing them:

- o Protecting the Public's Health. The goal of the legislation is to prevent public exposure to cancer-causing agents and to protect those citizens, especially vulnerable populations, such as the elderly, asthmatics and children, who live in cities with dirty air that does not conform to national health standards.
- o Improving the Quality of Life. The proposal will improve the quality of life for all Americans by exercising responsible stewardship over the environment for future generations.
- o Achieving Early Reductions and Steady Progress. The proposal establishes realistic timetables to meet air quality standards, but contains provisions to cut substantial amounts of air pollution in the near term, while requiring steady progress toward reducing emissions that are harder to control.
- o Harnessing the Power of the Marketplace. The proposal calls for the use of marketable permits to achieve acid rain reductions and emissions trading to achieve reductions from automobile pollution, so as to clean the air to a definite standard while minimizing the burden on the American economy.
- o Employing Innovative Technologies. The proposal encourages development of clean coal technology, alternative fuel systems for automobiles, and other cost-effective means of using new technology to cut pollution.

The President's plan allows for both environmental protection and economic growth, two long-standing concerns often considered at odds with each other. By incorporating both concerns in his proposal, the President seeks to break the gridlock which has characterized the debate on clean air for the past several years.



## ACID RAIN

### Highlights

- o Requires sulfur dioxide reductions of 10 million tons and nitrogen oxide reductions of 2 million tons.
- o Calls for five million tons of reductions in the first phase by the end of 1995.
- o Establishes a system of marketable permits to allow maximum flexibility for utilities to achieve required reductions in the most efficient and least costly manner.

### Background

"Acid rain" occurs when sulfur dioxide (SO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>) emissions undergo a chemical change in the atmosphere and return to the earth in rain, fog, or snow.

Approximately 20 million tons of SO<sub>2</sub> are emitted annually in the U.S., three-quarters from the burning of fossil fuels by electric utilities; 20 percent from other, more widely dispersed industrial sources; and 5 percent from transportation sources. The source of most SO<sub>2</sub> emissions causing acid rain are old (pre-1971) electric power plants, not subject to the existing Clean Air Act's strict emissions requirements on newer plants. Fifty power plants are responsible for about half of all SO<sub>2</sub> emissions.

Acid rain causes damage to lakes, forests, and buildings, contributes to reduced visibility, and is suspected of causing damage to human health.

Since 1970, the U.S. has spent \$225 billion to control air pollution. American industry spends about \$33 billion a year on air pollution controls (\$10 billion by the electric utility industry). One result of this expenditure is that SO<sub>2</sub> emissions have been reduced by almost 20% since 1977, despite a substantial increase in coal consumption during the period since then.

Any acid rain control program will increase electricity rates for affected utilities. Generally speaking, however, proposals with greater flexibility will result in smaller rate increases. Thus, the President's proposal to allow trading among utility companies will ensure that protection from acid rain is achieved in a less costly fashion than many of the more traditional "command and control" proposals that have been advanced.

The President's plan represents a major new innovation in harnessing the power of the marketplace to protect the environment.



The President's proposal calls for:

- A reduction of 10 million tons of sulfur dioxide by the year 2000, using a baseline year of 1980 for tons of SO<sub>2</sub> emitted, primarily from coal-fired power plants.
- A two-phase program in order to ensure early reductions. A reduction of five million tons is required during the first phase, by the end of 1995. All dates assume enactment of this legislation by December 31, 1989.
- A 2 million ton reduction of NO<sub>x</sub> in Phase II.. The plan would allow utilities to trade reductions of NO<sub>x</sub> for reductions of SO<sub>2</sub> or vice versa, and thus represents a call for a total reduction of 12 million tons in acid rain-causing pollutants.
- A three-year extension of the Phase II deadline for plants adopting clean coal repowering technologies, combined with regulatory incentives designed to smooth their transition into the marketplace. This will allow the United States to make good on the major investment the President has called for in clean coal, and will ensure that coal continues to play an important role in America's energy future.
- Freedom of choice in cutting pollution. The plan requires all plants above a certain size in affected states to meet the same emissions standard, but does not dictate to plant managers how the standard should be met. The plan requires the largest polluting plants to make the greatest cuts in pollution. The emissions standard would be set at the rate necessary to achieve five million tons in the first phase. The plan envisions a standard of 2.5 lbs. per million BTU, which would affect 107 plants in 18 states. The standard would then be tightened to approximately 1.2 lbs. per million BTUs so as to achieve a ten million ton reduction in Phase II.
- Maximum flexibility in obtaining reductions. The plan would allow utilities to trade required reductions so that they will be achieved in the least costly fashion. In the first phase, trading would be allowed among electric plants within a state or within a utility system. In addition, full interstate trading would be allowed in phase II.
- The estimated cost of the President's proposal would be \$3.8 billion annually in the second phase, and approximately \$700 million per year in the first phase. While this represents an increase of over two percent by the year 2000 in the nation's \$160 billion a year electricity bill, the flexibility built into the



President's plan reduces, by up to half, the cost of various competing proposals mandating the use of specific technologies.

### URBAN AIR QUALITY

#### Highlights

- o Employs a mix of Federal measures and state initiatives to cut sharply air pollution in our Nation's cities. The Federal measures alone will cut emissions that cause urban ozone -- the primary contributor to urban air pollution -- nearly in half, and help bring all cities into compliance with air quality standards.
- o Sets realistic timetables for attaining the standards but is designed to ensure steady progress toward meeting that goal.
- o Contains new initiatives to promote alternative fuels to reduce pollution from cars, buses, trucks and motor fuels, and to harness the power of the marketplace to ensure cost-effective reductions.

#### OZONE

##### Background

Based on data measured during the summers of 1985 to 1987, over 100 million people live in 81 urban areas across the country that exceed the health standard for ozone. In some cities, such as Los Angeles, the situation is persistent and severe (176 days in violation of the health standard in 1988); in other cities the problem is marginal (Lancaster, PA, is listed as a non-attainment area, but, in fact, has exceeded the Federal standard for only a few hours in the last 3 years).

The President's plan is designed to ensure that over two-thirds of the cities now out of attainment -- all but about 25 cities -- come into attainment by 1995. All but the three most seriously polluted areas (Los Angeles, Houston, and New York) will come into attainment by the year 2000; and these special cases will be given until 2010 -- contingent upon a requirement in the President's plan that they show significant annual progress toward cleaning the air and meeting the health standard.

Ozone is formed when volatile organic compounds (VOCs) are mixed with nitrogen oxides (NOx) in the presence of sunlight. Heat speeds up the reaction, and therefore concentrations are usually higher in the summer months. Exceedances of the ozone standard (.12 parts per million) grew sharply during the especially hot summer of 1988. If a city exceeds the standard for at least one



hour on four or more days during a three year period, it is judged to be "out of attainment" with the standard.

Exposure to ozone causes short term effects, such as shortness of breath, coughing, and chest pains, that are particularly acute for asthmatics, children, and senior citizens. Moreover, ozone is suspected of playing a role in the long-term development of chronic lung diseases and permanent lung structure damage. In addition to health effects, ozone has effects on vegetation, including crops such as soybeans, wheat and corn; is damaging forests in California; and is suspected as a contributing agent in damage to forests in the Southeastern U.S.

The major sources of VOCs, the most important ozone pre-cursor, are motor vehicles (40%); small "area sources," e.g., bakeries, dry cleaners, and consumer solvents (40%); large point sources, e.g., petroleum refineries (15%); and gasoline refueling (5%).

Many large point sources have already been required to reduce emissions by roughly 80 percent from uncontrolled levels under the Clean Air Act, and tailpipe emissions from new vehicles have been reduced by 96 percent. The smaller "area" sources are largely uncontrolled.

VOC and NOx emissions have decreased nationally since 1978 -- VOCs by 17 percent and NOx by 8 percent -- despite growth in population, travel and industrial activity. As a consequence, the trend in ambient ozone concentrations declined by 9 percent from 1979 to 1987. Increases occurred again, however, in the hot summers of 1987 and 1988.

The deadline for meeting urban ozone standards set back in 1977 under the existing Clean Air Act has already expired. Despite this progress in reducing ozone, the health standards have not been met within the deadlines. Without new legislation, the EPA will be required by law to impose Federal Implementation Plans (FIPs) on several major American cities. Courts are, for example, already preparing to impose such requirements on Chicago and Los Angeles. These FIPs could involve extraordinary controls that would sharply curb economic growth and dramatically alter the lifestyles of local residents.

Over the next decade, both EPA and the Federal Highway Administration estimate that growth in automobile use will begin to outstrip reductions occurring from fleet turnover, so that VOC emissions will increase after 2000.

Thus, additional measures to reduce ozone-causing emissions are needed if Americans are to have air that is clean enough to meet the health standard. The President's plan sets forth these additional clean air measures.

Some measures required under current law will help reduce VOC's. These include:



- o The effect of tightened automobile and truck tailpipe emission standards, which will continue to cut emissions as older cars are replaced with new ones;
- o The implementation of required inspection and maintenance programs for motor vehicles by state and local governments;
- o Volatility controls on gasoline. Earlier this year, the Bush Administration required a reduction of gasoline volatility (to a standard of 10.5 pounds per square inch);
- o Selected stationary source controls on refineries and other factories.

It is estimated that these measures will reduce VOC emissions from baseline levels by 18% by 2005. They will bring 23 cities into attainment by 1995, but without additional controls, increased automobile use would cause many of these to slip back out of attainment, leaving 72 cities out of attainment by 2005.

#### Additional Federal Measures Under the President's Proposal

In an ambitious effort to bring all cities into attainment, the President's proposals call for:

- o Further tightening the volatility requirements for gasoline nationwide during the summer months to reduce evaporative emissions which cause ozone formation. This will reduce VOC emissions by an estimated 8 percent.
- o Reductions in vehicle evaporative emissions caused by automobile running losses, which will cut VOC emissions by an estimated 4.2%.
- o Federal regulations to control emissions from treatment, storage, and disposal of hazardous wastes, which will cut VOC emissions by 3.2%.
- o Providing EPA with the authority to regulate VOC emissions from small sources and consumer products, such as consumer solvents and paints, which EPA estimates will cut VOC emissions by 2.5%.
- o Tightening hydrocarbon emission tailpipe standards for automobiles by almost 40%. The current standard will be tightened to the level soon to be required on all California vehicles (from .41 to .25 grams per mile). This will cut VOC emissions by 0.4%.



- o A first time requirement for light duty trucks to meet the same tailpipe standard now required of automobiles (.41 gpm). This will cut VOC emissions by 0.2%.
- o Expanded vehicle inspection and maintenance programs in serious non-attainment areas, which will cut VOC emissions by 1.2%.
- o Controls to reduce evaporative emissions which occur during refueling of motor vehicles. These "stage II" controls would require refueling stations to install special nozzles on gasoline pumps in non-attainment areas, and are expected to reduce VOCs by up to 2% in such areas.
- o Provide EPA new authority to issue control technology guidelines (CTGs) to major stationary source emitters (factories and plants). The most cost-effective control guidelines will be issued first. These guidelines are expected to result in a 3.5% reduction in VOC emissions.
- o Provide for the use of alternative fuels -- such as clean burning methanol, natural gas, and ethanol -- in the most serious non-attainment areas. The President's plan is designed to ensure that one million clean-fueled vehicles per year are introduced into America's most polluted cities by the year 1997. The program will not only reduce VOC emissions by an additional 2 to 5%, it will dramatically reduce toxic air emissions such as benzene, toluene, and xylene.
- o It is estimated that these new federal measures to curb ozone pollution will add \$3 to \$4 billion in annual costs to the economy when fully implemented.

#### The Long-Term Clean Fuels Program

The clean fuels program proposed by the President is perhaps the most innovative and far-reaching component of his proposal. It is designed to provide a long-term reconciliation of the environment and the automobile -- so that Americans can continue to enjoy economic growth, freedom in using their motor vehicles, and clean air.

The Administration proposes to replace a portion of the motor vehicle fleet in certain cities with new vehicles that operate on clean burning fuels. In the 9 major urban areas where current data shows the greatest concentration of ozone, the Administration's plan calls for a ten-year program for the phased-in introduction of alternative fuels, and clean-fueled vehicle sales according to the following schedule:



500,000 vehicles in 1995  
750,000 vehicles in 1996  
1,000,000 vehicles each year from 1997 through 2004

The major metropolitan areas affected by the plan are: Los Angeles, Houston, New York City, Milwaukee, Baltimore, Philadelphia, Greater Connecticut, San Diego, and Chicago. If these areas are able to demonstrate that they can achieve analagous reductions in VOC's and toxic air chemicals through other measures, the plan would allow them to "opt out" of the clean-fueled vehicle and alternative fuels program, in which case the vehicle target numbers would be scaled down proportionately. The plan would also allow other cities to be included in the program at their request.

The President's alternative fuels program, combined with other motor vehicle and fuel measures in the plan, will shrink the contribution of vehicles to the ozone problem from the current 40 percent to ten percent. This represents not only an alternative to some of the more disruptive driving controls currently being considered by some states, but also a bold and innovative means of reconciling continued use of the automobile by a growing society with the need for cleaner air.

#### Effect of the Federal Measures Proposed by the President

Taken together, the Federal measures proposed by the President, combined with the effect of measures being pursued under current law, will cut ozone-causing VOC emissions nearly in half. EPA estimates the program will reduce annual emissions by 45% by the year 2005. In and of themselves, these measures will bring all but about 20 cities into attainment of the ozone standard.

Because of the President's commitment to ensuring clean air in all American cities, however, his plan calls for additional measures to be undertaken by the states in order to meet the standard for healthy air.

#### State Measures Under the President's Proposal

Under the President's proposal, the roughly 20 cities with the most serious ozone pollution problems would be required to take steps to cut ozone-causing emissions by 3 percent per year beginning with enactment of the legislation.

This will guarantee that, even as more realistic deadlines for meeting the standard are set, those cities with the most significant air pollution problems will be on a steady path toward cleaner air.

Because of ozone transport, some areas may be unable to attain the standard in spite of adequate efforts to control their own pollution. Cities under 200,000 in population, which are not part of regional airsheds but whose attainment is prevented as a result of ozone pollution transported from other cities or regions, will not be subject to sanctions under these circumstances.



Emissions Trading: Harnessing the Power of the Marketplace to  
Protect the Environment

The President has also directed the EPA to develop rules and regulations which will provide companies with the maximum flexibility in achieving the pollution reductions called for in his plan.

Specifically, the President's plan would require the Administrator to issue regulations within 18 months to allow automobile manufacturers to engage in "emissions trading" and refiners to engage in "fuel pooling" to the maximum extent feasible. Such regulations shall establish performance standards for vehicles and transportation fuels marketed in the most serious and severe non-attainment areas. Companies would then be able to choose to engage in "emissions trading" and "fuel pooling" so long as they can demonstrate to EPA that the combination of measures they select will allow them to achieve the same emissions reductions as the control measures outlined in the President's program.

This "emissions trading" concept is already being considered by the State of California. It represents a market-based means of reducing both VOCs and reactive aromatics in the most cost-effective way. The EPA would publish these regulations at the same time as it publishes regulations implementing the other control measures in the President's plan. If companies cannot demonstrate alternative means of achieving the same amount of pollution reduction, they would be required to implement the control measures outlined above.

CARBON MONOXIDE

Background

Carbon monoxide (CO) is a colorless, odorless gas that tends to reduce the oxygen carrying capacity of the blood. It is a particularly serious health threat to individuals who suffer from cardiovascular disease, especially those with angina or heart disease. Unlike ozone, carbon monoxide problems are worse in cold weather.

Two-thirds of CO emissions come from motor vehicles. Emissions of carbon monoxide decreased 25 percent from 1978 to 1987, despite a 24 percent increase in vehicle miles travelled during that period, largely because of controls already in place on emissions from cars, buses, and trucks. Some improvement from these



controls will continue, as older, more heavily polluting cars are gradually replaced on America's roads by newer, cleaner vehicles. Currently, cars purchased before 1981 amount to only 38 percent of the vehicles miles traveled (VMT), but they account for over 86 percent of CO emissions.

As use of the automobile continues to grow, however, it is expected that many American cities will not attain the health-based carbon monoxide standard. That standard is 9 parts per million (ppm), measured over an 8-hour period. If a representative reading of monitors in an area shows that it exceeds the standard for two or more 8-hour periods, it is classified in "non-attainment."

There are currently about 50 American cities not meeting the standard. As with ozone, in some cases cities exceed the standard only moderately. About 6 urban areas, however, have a carbon monoxide problem classified by EPA as "serious".

EPA estimates that even as vehicle miles travelled (VMT) grow, the effect of fleet turnover will bring almost half of those cities currently violating the standard into attainment. Several of the measures in the President's proposal designed to curb ozone-causing emissions will also help reduce carbon monoxide. These include the measures described above to tighten tailpipe standards for light duty trucks, and to improve state and local inspection and maintenance programs.

Even with these measures, however, several American cities will continue to have a carbon monoxide problem. To bring these cities into compliance with the health-based standard, the President's proposal contains several important measures designed to cut carbon monoxide emissions.

Specifically, the President's plan calls for:

- o A major new program to promote the use of clean-burning oxygenated fuels, which emit dramatically less carbon monoxide. The plan would require those cities with the most serious carbon monoxide problems to use gasoline blended with oxygenated fuels during the winter months. Oxygenated fuels include ethanol, methanol, ETBE, and MTBE.

Blending oxygenates into fuel will not only reduce carbon monoxide, it will also sharply reduce toxic air emissions caused by aromatics in conventional gasoline.

Ethanol and ETBE are generally produced in the US from corn, wheat and potato crops. They offer the opportunity both to clean the air and to provide expanded markets for America's farmers.

The President's plan would allow cities to "opt out"



of the oxygenated fuels requirement, if they could demonstrate to EPA that they would come into attainment of the carbon monoxide standard using other measures.

EPA estimates that requiring oxygenated fuels in areas with serious carbon monoxide problems will reduce carbon monoxide emissions by an additional 18% in these areas.

- o Giving EPA the authority to issue regulations for a carbon monoxide cold temperature standard. Carbon monoxide problems are exaggerated when motor vehicles start in exceptionally cold weather. This standard has the potential to reduce carbon monoxide emissions by 7 to 12 percent.

The President's plan will bring the vast majority of cities into attainment with the carbon monoxide standard by 1995, and will bring all American cities into attainment by the year 2000.

#### PARTICULATE MATTER

##### Background

Particulate matter (PM10) includes acid sulfates, toxic organics and metals, and insoluble dusts that come from traditional stack emissions, as well as area sources such as wood stoves and open burning. Construction, roadways and mobile sources also contribute to the problem.

PM10 can cause premature death in elderly and ill persons, aggravation of existing respiratory disease, increased respiratory illness and other effects.

Particulate matter (PM10) standards were revised in 1987 to address smaller particulate matter particles most likely to penetrate the lungs.

The President's program will:

- o Require reasonably available control measures to meet the standard.
- o Ensure that the majority of cities meet the standard by 1994, and that all cities meet PM10 standards by 2001.

#### TOXIC AIR POLLUTANTS

##### Highlights

- o Dramatically accelerates progress in controlling major



toxic air pollutants.

- o Uses best technology available to cut air toxics.
- o Promises certifiable progress in regulating sources of toxic air emissions on a set schedule.

### Background

The emission of toxic chemicals into the air is believed to cause cancer and other health effects in humans.

Since 1974, EPA has been required to regulate such emissions in order to provide an "ample margin of safety" to the public. Because this margin has been difficult to define and has been the subject of continued litigation, EPA has had difficulty proceeding with regulation under the law. Since passage of the statute, it has published regulations for only seven toxic air pollutants.

Because the statute has proven unworkable, the President has proposed a major revision of the law in order to guarantee greatly accelerated progress in reducing the damaging effects of toxic air pollution.

Data recently released by the EPA indicate that 2.7 billion pounds of toxic chemicals are emitted into the air each year. EPA estimates that these emissions contribute to approximately 1500-3000 fatal cancers annually. Toxic chemical emissions are associated also with respiratory disease and birth defects.

Motor vehicles and stationary sources each account for approximately half of air toxic emissions. The measures in the President's plan designed to curb VOC emissions and promote alternative fuels will sharply reduce emissions from motor vehicles.

The President's plan also includes a major new initiative to reduce air toxic emissions from stationary sources (factories, plants, and other such sources).

A majority of identified carcinogens are emitted by about 30 industrial categories, including steel mills (coke ovens), rubber, pulp and paper, chromium electroplating, and solvent users. The President's plan is designed to reduce quickly emissions from these sources.

The President's program will:

- o Establish a set schedule for regulating major sources of toxic air pollution. Under the plan, EPA will publish regulations for controlling ten source categories within two years, 25 percent of source categories within four years, 50 percent of source



categories within seven years, and all necessary additional categories of air toxics within ten years.

- o Require emitters of toxic air pollution to use the Maximum Available Control Technology (MACT) to sharply cut pollution. This means that EPA would set a standard based on the best technology currently available. Plants would then be required to meet that standard, with some exceptions to add flexibility for those who have already reduced most air toxics and for very small plants.
- o Encourage voluntary reductions early, before standards are even published, by providing credit for those reductions against the MACT requirement.
- o After Phase I is implemented, the EPA Administrator shall assess any remaining risk after reductions from state-of-the-art technology and determine if there is a need for further controls. Based on his assessment, the EPA Administrator would set additional standards to prevent the public from being exposed to "unreasonable risk", which would allow considerations of cost and technical feasibility as well as health-based risks.

It is estimated that the President's air toxics initiative will eliminate in the first phase about three-quarters of the cancer deaths caused by toxic air emissions from factories and plants.

The annual costs of the program are difficult to estimate until actual standards are published, but current EPA estimates center at about \$2.0 billion per year.

# # # # #



Acid Rain  
pH 11