United States
Environmental Protection
Agency

January 1992

Air/Policy

EPA

Innovative Regulatory Strategies Workshop

Market-Based Incentives and Other Innovations for Air Pollution Control

January 15-17, 1992

Georgetown University
Conference Center

Washington, DC

Sponsored by:

U.S. Environmental Protection Agency

Air Quality Management Division
Office of Air and Radiation

and

Regulatory Innovations Staff
Office of Policy, Planning and Evaluation

INNOVATIVE REGULATORY STRATEGIES WORKSHOP
AGENDA
WEDNESDAY, JANUARY 15, 1992

11:00 a.m. - 1:00 p.m.	Registration
1:00 p.m.	**Welcome and Overview**
Welcome	Barry Korb, Workshop Moderator Director, Regulatory Innovations Staff Office of Policy, Planning and Evaluation, U.S. EPA
Opening Remarks	John Seitz, Director Office of Air Quality Planning and Standards Office of Air and Radiation, U.S. EPA and Maryann Froehlich, Acting Director Office of Policy Analysis Office of Policy, Planning and Evaluation, U.S. EPA
Overview of U. S. Programs	John O'Connor, Senior Program Manager Radian Corporation and Linda Critchfield Acid Rain Division Office of Air and Radiation, U.S. EPA
Keynote Address	William Rosenberg, Assistant Administrator Office of Air and Radiation, U.S. EPA
Session I 2:30 - 5:45 p.m.	**Innovative Uses of Taxes and Fees for Stationary and Mobile Sources**
Introduction	Barry Elman Regulatory Innovations Staff Office of Policy, Planning and Evaluation, U.S. EPA
Case Studies	Louisiana Environmental Scoring System/Property Tax Exemptions John Glenn Louisiana Department of Environmental Quality Baton Rouge, Louisiana Drive Plus: Sales Tax/Rebate Based Upon Vehicle Emissions and Fuel Efficiency Deborah Gordon Union of Concerned Scientists Berkeley, California Alternative Fuels Programs Kevin McCarthy Office of Legislative Research Hartford, Connecticut
Concurrent Small Group Discussions	
Videos and Displays	
6:00 p.m.	Reception (Cash Bar)

THURSDAY, JANUARY 16, 1992

Session II — **Marketable Permits for Stationary, Mobile, and Area Sources**
8:15 a.m. - 12:15 p.m.

Introduction
Karen Martin
Office of Air Quality Planning and Standards
Office of Air and Radiation, U.S. EPA

Case Studies

South Coast Marketable Permits Program: VOC and NO_x Sources
Pat Leyden
South Coast Air Quality Management District
Los Angeles, California

Locomotive Emissions Trading
Marijke Bekken
California Air Resources Board
Sacramento, California

Wood Stove/Fireplace Marketable Permit Program
Nicholas Kirsch
Telluride Transit Company
Telluride, Colorado

Concurrent Small Group Discussions

Luncheon
12:30 p.m.

Luncheon Speaker
Richard Morgenstern, Acting Assistant Administrator
Office of Policy, Planning and Evaluation, U.S. EPA

Session III — **Other Innovative Strategies for Air Pollution Control**
2:00 - 5:30 p.m.

Introduction
Conniesue Oldham
Office of Air Quality Planning and Standards
Office of Air and Radiation, U.S. EPA

Case Studies

Free Bus Ride/Voluntary No Drive Day
Ray Bishop
Tulsa City/County Health Department
Tulsa, Oklahoma

Media Programs to Encourage Carpooling
Lynn Sonntag
Disney Productions
Los Angeles, California

THURSDAY JANUARY 16, 1992

Session III (Continued) **Other Innovative Strategies for Air Pollution Control**
2:00 - 5:30 p.m.

Employer-Based Trip Reduction Programs
Sarah Siwek
LA County Transportation Commission
Los Angeles, California

SCRAP (Old Car Buy Back Program)
Terrence Larson
Unocal
Los Angeles, California

Concurrent Small Group Discussions

FRIDAY, JANUARY 17, 1992

Session IV **Dialogue on Issues Leading to Future Research**
9:00 a.m. - 12:00 p.m.

This session will provide an opportunity for all workshop attendees to:

- Share highlights and synthesize issues raised during the small group discussions
- Hear about additional programs identified by individuals in the concurrent small group discussions
- Participate in the definition of a future research agenda

Closing Remarks

Adjourn
12:00 p.m.

EPA is not endorsing any particular program featured in this workshop, but it is providing an opportunity for the interaction of people who are involved in real applications of these strategies.

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Key for Nametag Colors:

Green = EPA	Blue = State/Local Agency
Grey = Environmental, Academic	Gold = Industry, Other

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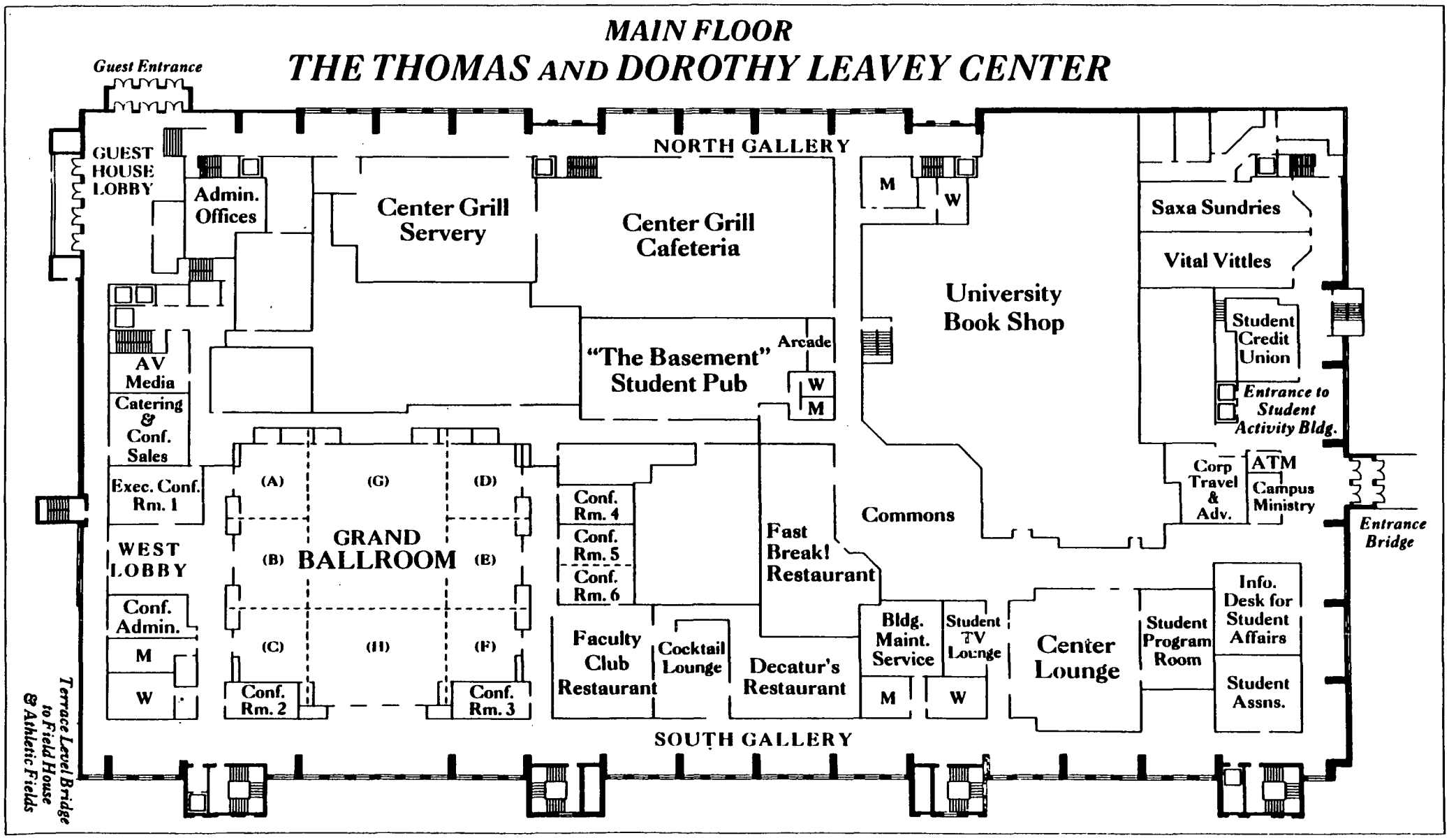
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THE THOMAS AND DOROTHY LEAVEY CENTER
Guest Entrance
GUEST HOUSE LOBBY
Admin. Offices
NORTH GALLERY
Center Grill Servery
Center Grill Cafeteria
M
W
Saxa Sundries
Vital Vittles
University Book Shop
Student Credit Union
Entrance to Student Activity Bldg.
AV Media
Catering & Conf. Sales
"The Basement" Student Pub
Arcade
W
M
Exec. Conf. Rm. 1
(A)
(G)
(D)
GRAND BALLROOM
(B)
(E)
(C)
(H)
(F)
Conf. Rm. 2
Conf. Rm. 3
Conf. Rm. 4
Conf. Rm. 5
Conf. Rm. 6
Fast Break! Restaurant
Commons
Corp Travel & Adv.
ATM
Campus Ministry
Entrance Bridge
WEST LOBBY
Conf. Admin.
M
W
Faculty Club Restaurant
Cocktail Lounge
Decatur's Restaurant
Bldg. Maint. Service
Student TV Lounge
M
W
Center Lounge
Student Program Room
Info. Desk for Student Affairs
Student Assns.
SOUTH GALLERY
Terrace Level Bridge to Field House & Athletic Fields

EVALUATION OF
INNOVATIVE REGULATORY STRATEGIES WORKSHOP
January 15-17, 1992, Washington D.C.

A. GENERAL

1. My overall evaluation of the workshop is:

   Excellent Good Average Fair Poor

2. The oral presentations (session topics and case study speakers) were:

   Excellent Good Average Fair Poor

3. The concurrent small group discussion sessions were:

   Excellent Good Average Fair Poor

4. The Friday panel that reported back highlights of the small group discussions was:

   Excellent Good Average Fair Poor

5. The workshop gave me ideas for innovative regulatory strategies that could be applied in my State/local area.

   Agree Disagree

6. The length of the workshop was:

   Too short About right Too long

7. The location of the workshop (Washington, D.C.) was:

   Excellent Good Average Fair Poor

8. The facility used for the workshop (Georgetown University Conference Center) was:

   Excellent Good Average Fair Poor

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C. SESSION II: MARKETABLE PERMITS

1. I attended the _____ small group discussion session.

2. The level and quality of idea exchange at this small group discussion session was:

   Excellent Good Average Fair Poor

3. The key issues, programs, and strategies pertaining to this session topic were discussed.

   Agree Disagree

4. Other programs or strategies that fit under this session topic but that were not addressed during the small group discussion are:

   _____

D. SESSION III: OTHER INNOVATIVE STRATEGIES

1. I attended the _____ small group discussion session.

2. The level and quality of idea exchange at this small group discussion session was:

   Excellent Good Average Fair Poor

3. The key issues, programs, and strategies pertaining to the session topic were discussed.

   Agree Disagree

4. Other programs or strategies that fit under this session topic but that were not addressed during the small group discussion are:

   _____

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Overview

EPA INNOVATIVE REGULATORY STRATEGIES WORKSHOP

Market-Based Incentives and Other Innovations for Air Pollution Control

Scope

The Clean Air Act Amendments of 1990 allow, and in some cases require, states to adopt effective, market-based strategies or other innovative types of control. The U.S. Environmental Protection Agency's innovative regulatory strategies program seeks to encourage and facilitate, as appropriate, the development, demonstration, and implementation of a wide range of innovative regulatory programs, including market-based, informational, and pollution prevention approaches.

Objectives

The purpose of this workshop is to bring together and facilitate discussions among individuals with practical experience or interest in developing market-based strategies. The workshop is designed to:

- Promote the consideration and use of market-based regulatory strategies
- Explore design and implementation issues related to strategies such as marketable emission permits, pollution fees, and transportation controls
- Facilitate peer exchange of information and ideas on actual programs (either existing or being developed)
- Identify implementation obstacles and other issues for future research

DRAFT

Summary of Innovative Regulatory Strategy Programs Found in the Literature and Popular Press

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October 1991

DRAFT

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B. Vehicle Fees/Taxes/Rebates 9

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I. Transportation Control Measures

A. Alternative Fuels

1. Alternative Fuel Requirements (General)

a. Colorado -- passed a bill that calls for 10% of new motor vehicles bought or leased by the State during 1991-92 to run on clean-burning alternative fuels. Each year through 1994 and 1995, an additional 10% of all new vehicles will have to use alternative fuels. The State also provides a $200 rebate to anyone who buys a clean-fuel vehicle or retrofits an existing car or truck. Tilley, C.R. "Clean Air and Natural Gas Vehicles." Public Utilities Fortnightly. September 13, 1990, p. 31.

b. Utah -- Utah legislature may vote in favor of a plan to eliminate the sales tax on alternative-fueled vehicles, one of 123 recommendations adopted in summer 1990 by the Governor's Commission on Clean Air. The exemption covers sales of motor vehicles or equipment for converting existing vehicles and refueling equipment that meet 1990 CAA. "Alternative Fuels: Politics Threatens New York Program for Must-Buy Clean Fueled Vehicles" Energy Report, January 14, 1991. (Newsletter)

c. California -- 1995 rules establish strict emission limits for low-emission vehicles (LEVs) and provide an incentive for alternative-fueled and electric vehicles "Cuomo: New York Will Adopt California Auto Standards" Air Water Pollution Report March 4, 1991. (Newsletter)

d. Access to ride lanes or preferential parking for alternative fuel cars "The Greening of Detroit" Business Week April 8, 1991, p. 60.

2. Natural Gas

a. Pennsylvania -- The Pennsylvania Energy Office provided the State's alternative fuels program with $10 million last year. The energy office committed half of that funding to private companies, transit authorities, a State university, and several local governments for the conversion of 124 fleet vehicles to natural gas. The program is also assisting the demonstration of a dedicated natural gas bus in Altoona's transit system. And 63 Pennsylvania Department of Transportation vehicles are set to be converted to natural gas.

Through public-private partnership with the Pennsylvania Energy Office, Columbia Gas is converting 25 transit authority vehicles in York where they own and operate a refueling station. Columbia Gas was instrumental in developing the nation's first dedicated natural gas bus and loaned the bus for field testing to the transit authority in Columbus, Ohio, which has been using it in regular service 5 days/week since early 1990. Tilley, C.R. "Clean Air and Natural Gas Vehicles." Public Utilities Fortnightly. September 13, 1990, pp. 31, 34.

b. Broward County, Florida -- Gray Line Corp. is seeking approval to operate 50 buses, mini-buses, and vans on compressed natural gas (CNG) instead of diesel fuel or gasoline. Gray Line wants $2.25 million to buy 15 new buses and vans that operate on CNG, and to convert 35 existing vans from gasoline to the alternative fuels. Of that money, 20 percent will come from Gray Line. The rest will be subsidized by taxpayers through Federal and State funds. Under the latest plan, Gray Line would purchase 5 new 40-foot buses, 5 minibuses, and 5 vans, all used to shuttle passengers to and from the county's Tri-Rail Stations. If approved by the Metropolitan Planning Organization and the Urban Mass Transportation Administration, Gary Line could begin operating the new vehicles by early 1992. "Gray Line Proposes Clean Bus Tax Dollars Sought for Natural Gas Plan" Sun Sentinel July 23, 1991, p. 5B.

c. T. Boone Pickens head of the Mesa Limited Partnership told the Natural Gas Roundtable that consumers should get a $2,000 tax credit during the first year they own a vehicle capable of running on natural gas or another alternative to gasoline. "Alternative Fuels: Pickens, Energy Group Push Incentives for Consumers Who Buy Clean Cars." Energy Report, December 10, 1990 (Newsletter)

d. Los Angeles/San Diego/San Francisco Bay. The TecoDrive 7000 CNG powered engines certified by CARB will fuel 10 new school buses by some Los Angeles, San Diego, and San Francisco Bay area school districts beginning next September. It is built by Tecogen Inc., Waltham, Mass. CARB data show the CNG powered buses (which seat 66 students each) emit less than 1/3 of the HC and NO_x emissions allowed by the CARB emission limits.

The 10 Tecogen buses are being built through a $700,000 grant from the California Energy Commission. The grant is part of a $100 million California program established to replace more than 460 school buses built before 1977 with new, cleaner running models.

The first 163 school buses, built at a cost of $20 million, are expected to be available for service by next September. They include 103 diesel powered models and 50 that use methanol in addition to the 10 CNG buses. An additional 300 buses, which may cost as much as $40 million, are expected to be built this year. "U.S. Gas Fueled Vehicle Program Intensifies." Oil & Gas Journal, April 15, 1991, p. 32.

e. British Columbia -- In a conference entitled "Roads to Alternative Fuels" held July 1990, participants heard a first-hand account of a government-supported program introducing an alternative transportation fuel. Bill Hennessey of British Columbia (BC) Gas described a 10-year, province-wide program to convert privately owned gasoline autos and light-duty trucks to natural gas.

Initially, the program was hampered by poor quality conversions performed by inadequately trained mechanics. Consumers also were wary of the lack of sufficient refueling stations, and of various problems with station equipment. BC Gas and the government took a more proactive role. As an incentive to those interested in opening a refueling station, risk-free, money-backed financing was offered, based on a minimum sales volume. Station operators were provided with engineering assistance. Conversion mechanics were specially licensed, conversion warranties underwritten, and the costs of resolving customer complaints were substantially covered.

Although the Canadian government abolished fuel taxes on natural gas and sales tax on the conversion kits, the relatively low price of gasoline through the 1980's acted as a deterrent to consumer participation in the conversion program. Since 1984, ~11,000 vehicles have been converted. "Roads to Alternative Fuels" ITS Review November 1990, pp. 2-3.

3. **Methanol/Ethanol**

a. Nebraska. Has a market-expansion program to increase ethanol demand, including an ethanol production credit equal to 20 cents/gal; an excise tax reduction on 10% methanol blends, taxing them at 2 cents/gal less than gasoline; cooperative marketing services for gasoline marketers; an equity investment program through the Nebraska Ethanol Authority and Development Board; a full-time industry assistance program; and performance-based tax-abatement help. "Refiners Should Look to Mixing Oxygenate in Gasoline Formulas" International Solar Energy Intelligence Report, October 19, 1990. (Newsletter)

b. The United States' National Corn Growers Association wants any new energy legislation to require use of 10 percent ethanol-blend fuels in all federal vehicle fleets; appropriate funding for ethanol research and development that is equal to money provided for alternative fuels; and establish federal investment tax credits for expanding existing ethanol plants and constructing new plants. "The United States' National Corn Growers Association" Greenhouse Effect Report, April 9, 1991 (Newsletter)

c. California -- Methanol can be used in fuel-flexible vehicles that automatically adjust to operate on alcohol fuels or gasoline, or both. The California Energy Commission plans to place 5,000 of these fuel-flexible vehicles with government and private fleets throughout the State by 1993.

California has used fuel-flexible vehicles since 1987. In 1990, 210 Ford built fuel-flexible vehicles were placed with government and private fleets in California. In addition, there are 20 General Motors Chevrolet Corsica variable fuel vehicles in California fleets.

California Energy Commission variable fuel demonstration programs for 1991 include the Chevrolet Lumina, the Ford Taurus, and the Volkswagen Jetta. "Alternate Fuels Come of Age." Moore, R.E. Gene. The Journal of State Government Vol 63. p. 93.

d. Iowa -- The Des Moines Metro Transit Authority will become the first city bus system to turn its entire fleet into vehicles that operate on 80% diesel and 20% ethanol injection by as early as May 1991. The Des Moines project will be funded primarily by a $4.2 million Federal grant and about $1 million in local and private dollars. The project could have a significant effect on the economy of this corn-growing State. "Corn-Fed Buses" State Government News. p. 35. (date?)

e. Illinois -- By 1992, the Greater Peoria Mass Transit District will replace 14 of its diesel buses with ones that run on 100% ethanol. The $4 million project will be paid for with a $2.1 million Federal grant, about $1 million from State government, and the remaining from the private sector. Bradley University in Peoria plans to study the direct and indirect costs of ethanol once the Peoria buses are in operation. The project could have a significant effect on the economy of this corn-growing State. "Corn-Fed Buses" State Government News. p. 35. (date?)

4. **Use of Electric Cars**

a. Pennsylvania -- Legislation in House of Representatives to eliminate the Pennsylvania State sales tax, registration, and inspection fees for electrically powered vehicles. "US, French Politicians Encourage Use of Electric Cars" Business and the Environment, February 22, 1991 (Newsletter)

b. France -- Proposed tax rebate for buyers of electric cars "US, French Politicians Encourage Use of Electric Cars" Business and the Environment, February 22, 1991 (Newsletter)

c. California -- Legislation has been introduced to provide Federal funds for States to encourage development of electric car technology and the regional infrastructure to support it.

At the Federal level, a new bill "the Electric Vehicle Research, Development and Commercialization Act of 1991" would establish a 10-year $50-million demonstration program for large or polluted cities to buy electric vehicles for their municipal fleets. It would also set aside $10 million a year for 3 years for joint ventures with industry to develop electric car infrastructure and $5 million a year for 5 years to assist States with planning and seed money for alternative-fuel vehicles. Also, plans to establish a Federal fund to assist States in developing the technology to nurture electric vehicle production. The bill would also set up a capital pool of matching Federal funds for States to sponsor regional corporations to support development of an electric vehicle industry with ventures such as industrial parks or telecommunication services. "Officials Plug Electric Cars to Recharge Economy" Los Angeles Times May 5, 1991, p. 3-B.

d. Los Angeles, CA -- The Los Angeles Department of Water and Power (DWP) and Southern California Edison last year awarded a $7-million contract to a Swedish firm, Clean Air Transport (CAT), to produce at least 6,000 hybrid electric cars for sale in the Los Angeles market. The luxury sedans, to be fueled by a combination of electricity and a small internal engine, would initially cost an estimated $25,000 each and would have a range of 150 miles. They are slated to hit city roads within the next 4 years. The firm's plans call for production of 35,000 cars by 1997. Arizona and Utah, Great Britain and various counties in Sweden have also approached the high-tech firm about hosting a long-term production plant.

The CAT sedan will have a top speed of 70 mph and accelerate form 0 to 30 mph in 9 seconds. Their batteries must be replaced every several years at a cost of $800 to $5,000 per car -- depending on the number and the nature of the batteries. "Officials Plug Electric Cars to Recharge Economy" Los Angeles Times May 5, 1991, p. 3-B.

e. Westchester, CA -- The DWP and Edison also launched a $2-million research project last year to build an electrified roadway in Westchester. An electric cable is being installed beneath the pavement on a 1,000-foot segment of a lightly traveled street below Westchester bluffs. Two electric vans and a passenger bus will be equipped to draw power from the street by tapping a magnetic field created by the electrified roadway. This could be the first step toward a full-scale powered roadway in Los Angeles. "Officials Plug Electric Cars to Recharge Economy" Los Angeles Times May 5, 1991, p. 3-B.

f. Sacramento, CA -- The Air Resources Board is implementing new legislation to give electric vehicle (EV) buyers an income tax credit of up to $1,000 and partial sales-tax exemption. "Ready! Set! . . . Charge?" Los Angeles Times, August 7, 1991, p. E-1.

g. California -- Throughout California, utility companies are designing incentive programs, such as deductions for recharging at night when the electric power load is reduced. "Ready! Set! . . . Charge?" Los Angeles Times, August 7, 1991, p. E-1.

h. Los Angeles, CA -- Under the Los Angeles Vehicle Initiative, Los Angeles City Councilman Marvin Braude in 1988 sponsored a worldwide competition for the design of 10,000 electric vehicles for Southern California drivers. That resulted in a contract with Clean Air Transport, a Swedish-English consortium that is designing a hybrid gasoline-electric, 4-passenger sedan. The car will be priced in the mid-$20,000 range and franchised through local automobile dealers.

The City Council in July passed a series of recommendations to make Los Angeles an "electric vehicle-ready city." The plan includes massive installation of battery-charging outlets at public and private parking facilities throughout the city. "Ready! Set! . . . Charge?" Los Angeles Times, August 7, 1991, p. E-1.

i. Ford, General Motors, and Chrysler announced earlier this year that they had formed a joint venture to share the costs of research designed to produce a technological breakthrough. They have pledged $35 million to the project and plan to raise $100 million annually by 1993 from the government and electric utilities for the consortium, known as the United States Advance Battery Consortium. They are addressing the need to produce a lighter, cheaper, more durable battery. "Officials Plug Electric Cars to Recharge Economy" Los Angeles Times May 5, 1991, p. 3-B.

j. Phoenix, AZ -- The Solar and Electric 500 car race is scheduled for April 5-7 to showcase the latest in solar- and electric-car technology. American Honda recently stepped forward with a "zinc-air" battery-powered entry. General Motors also has announced that it will retool its Lansing, MI factory to produce its first electric car, the Impact, possibly by 1993. Development of the alternative technology has taken on a new urgency, with California mandating that automakers produce at least 10% no emission--meaning electric--cars by 2003. Ernie Holden, who founded the Solar and Electric Racing Association, hopes the race will bring together leaders in the field and promote innovation. "Electric, Solar Cars Will Race in Valley" Arizona Republic March 13, 1991, p. B-1.

k. Los Angeles, CA -- 10 LA-area bus lines would be served by electric trolley buses under a preliminary plan approved by the Southern California Rapid Transit District (RTD) late last month. The 10 RTD bus lines being considered for electrification carry about 250,000 passengers daily along 150 miles of routes. The 7-year cost estimate of converting the lines to electric trolleybus service is $570 million. "Regional, State, Local Briefs" Urban Transport News April 4, 1991, p. 54. (Newsletter)

5. **Low Emission Vehicles**

a. New York State -- State officials proposed Low Emission Vehicle standards modeled after rules in California and would affect model year 1995 cars and light trucks sold in New York. The new proposal would not set one uniform limit on tailpipe emissions. Car manufacturers could make vehicles that meet 5 different sets of standards. The annual average of each manufacturer's fleet would have to comply with an average limit, which would grow more stringent each year. Beginning in 1998, manufacturers would be required to start selling "zero emission vehicles," which would probably be electric. The fleet averaging provision may allow New York to direct the cleanest operating vehicles to the most polluted

areas of the State through incentive programs and fleet purchase requirements "New Car Emission Rules" Newsday July 30, 1991, p. 27.

6. **Fuel From Corn/Other Crops**

   a. North Carolina Solar Energy Association suggested slashing taxes on fuels made out of corn or other crops. "North Carolina" Air Water Pollution Report May 1990 **(Newsletter)**

7. **Tailpipe Testing/Inspection**

   a. The waiver limit is a ceiling on expenditures that must be undertaken if a vehicle fails an inspection/maintenance (I/M) test. The higher the ceiling, the greater the probability that an older vehicle will be scrapped rather than repaired. Of the 9 severe ozone nonattainment areas, only Houston has no waiver limit. Connecticut has a $40 limit, Philadelphia a $25 limit on pre-1975 and a $50 limit on newer vehicles, Baltimore a $75 limit, Milwaukee a $55 limit, California a $50 limit for pre-1972 cars, $90 for 1972-1974 cars, and $125 for 1975-79 cars. Sierra Research, the Office of Technology Assessment, and the Motor Vehicles Manufacturers Association argue that the waiver limits should be raised to $300-$500. Higher waiver limits would accelerate the scrapping of vehicles with market values below the waiver limit.

   b. Several of the 65 State I/M testing programs in existence exempt older vehicles from I/M requirements. Of the 9 severe ozone nonattainment areas, Baltimore has the largest exemption: only 1977 and newer models are included in its program. California includes models since 1966; Milwaukee includes models up to 15 years old. Connecticut, Chicago, and Houston include models since 1968.

      New York City includes all vehicles in their I/M program. The Office of Technology Assessment recommends including all vehicles because it would stimulate the replacement of older vehicles by increasing the relative cost of keeping them registered. Reducing Emissions From Older Vehicles, Robert Anderson, American Petroleum Institute, Research Study #053. August 1990, p. 30.

B. Vehicle Fees/Taxes/Rebates

1. General

a. Los Angeles, CA -- Southern California's plague of smog and traffic could be significantly reduced with 5 incentive-based traffic policies suggested by the Environmental Defense Fund and the Regional Institute of Southern California.

These policies, promoted as part of a project called Cleaning Southern California's Air and Protecting its Economy (CSCAPE) include: 1) Removing employer parking subsidies and allowing employers to offer cash incentives to employees who relinquish paid parking privileges. Free or heavily-subsidized parking is a major inducement for commuters to drive alone. 2) Instituting non-employee parking pricing at major activity centers such as shopping malls, high schools, and universities. In addition, local zoning practices that currently encourage free parking could be amended with reduced parking requirements. 3) Implementing peak-period congestion fees to relieve traffic during heavy commuting hours (road pricing). 4) Deregulating transit to allow expanded use of private transit services similar to those that currently serve many airports. Deregulation could make van services, for example, more efficient and a favorable option for commuters. 5) Assessing smog fees on cars in proportion to the number of miles driven and vehicle emissions produced. This policy would reward drivers who cut automobile use and who buy and maintain less-polluting vehicles. Low-income drivers would be assessed smog fees at a lower rate than higher income persons. Carpoolers would pay less and public transit users would pay nothing under these policies, but single occupant vehicles would pay the full fee, which could average $5 to $6 per day on normal workdays. "Environmentalists Suggest Incentives to Clear Up Smog, Traffic Congestion" Urban Transport News April 4, 1991, p. 50. (Newsletter)

2. Higher Registration Fees

a. Washington State -- Washington Environment 2010 program proposes to increase registration fees for cars with poor gas mileage, discourage commuting by cars alone, require Stage II vapor recovery for gas stations, and expand Inspection and Maintenance programs beyond the Seattle and Spokane areas. "Around the States: Washington" Air Water Pollution Report, June 11, 1990 (Newsletter)

b. San Diego, CA -- San Diego Association of Governments is considering an increased registration fee for motorists who own more than one car. "Around the States: CALIFORNIA -- Some San Diego motorists spoke sharply against an emissions fee" Air Water Pollution Report June 10, 1991 (Newsletter)

c. Los Angeles, CA -- The AQMD plan also includes a recommendation that the Legislature revise registration fees to increase the cost of driving older, higher-polluting vehicles. "Junkers -- Targets in Smog War." Los Angeles Times March 20, 1991, p. 1-A.

d. Salem, OR -- Oregon Environmental Council worked during the legislative session to pass a much stronger clean-air bill, one that would have charged motorists a fee based on the kind of car driven and the amount of miles traveled. Those with old, gas-guzzling cars and plenty of time on the road would have faced the heftiest fees. "Governor Signs Wide Clean Air Bill" Oregonian August 6, 1991, p. B-1.

e. Ventura County, CA -- The Ventura County Board of Supervisors voted to add $2 to the annual registration fee, which raises the cost of registering a car to $28. The fee will fund 8 anti-smog programs, including 4 designed to reduce smog generated by cars. Those program include one to promote ride-sharing and another to require large companies to purchase vehicles that run on cleaner fuels such as methanol. "County Hikes Fees For Car Registration" Los Angeles Times May 8, 1991, p. B-1.

3. **Increased Bridge Tolls**

a. San Francisco, CA -- San Francisco Commission called for increasing bridge tolls from $1 to $2 and creating a combined gasoline tax and smog fee that could boost the price of gasoline to $4/gal. "San Francisco Commission Drafts Strict Measures for Cleaning Air" Air Water Pollution Report July 16, 1990 (Newsletter)

b. Sacramento, CA -- A Senate report, "Blueprint for Our Future: Safeguarding California's Environment" said the State could raise fuel taxes and bridge tolls and even turn congested freeways into toll roads to encourage motorists to abandon the State's increasingly crowded highways "State Studies Tolls, Taxes for Drivers" San Jose Mercury News January 23, 1991, p. 8B.

c. Kings Beach, CA -- Lake Tahoe would face toll booths at Emerald Bay under a plan being considered by a coalition of 12 organizations. The Tahoe Transportation Coalition, which includes environmentalists and representatives of the gaming and ski industries, agreed a free basinwide transit system could ease the problems. Coalition members said one way to pay for such a system would be to set up toll booths at both sides of Emerald Bay during the summer months. The coalition also considered a 1/2 cent basinwide sales tax to raise funds for transit services and a drive to encourage private businesses to provide shuttle service to resort areas. "Toll Booth Recommended to Ease Tahoe Congestion" Sacramento Bee Monday, July 15, 1991, p. B-3.

4. **Fees for Single Occupancy Vehicles**

a. South Coast, CA -- Task Force suggests commuters pay fees for driving alone during rush hour, forcing them to switch to mass transportation -- the new Los Angeles County Blue Line light rail, buses or carpool. Also suggests prohibiting employers from subsidizing employees' parking costs. "Regional, State, Local Briefs: California" Urban Transport News July 26, 1990 (Newsletter)

5. **Fees for Motorists Driving Long Distance**

a. San Diego, CA -- San Diego Association of Governments considering charging motorists for driving long distances. "Around the States: CALIFORNIA -- Some San Diego motorists spoke sharply against an emissions fee" Air Water Pollution Report June 10, 1991 (Newsletter)

b. Salem, OR -- Under Senate Bill 1089, automobile owners would pay a fee based on odometer readings and type of car. Someone who drives a fuel-efficient car about 15,000 miles a year would pay about $150. "Panel Reviews Dirty Air Fees" Oregonian April 25, 1991, p. D-4.

c. Los Angeles, CA -- The AQMD agreed to proceed with a requirement for local governments to enact air quality programs that would shorten commutes. For instance, a city could require new housing to be near jobs and vice versa, or encourage development near mass transit stations. "AQMD Approves Changes to Region's Clean Air Plan" Los Angeles Times July 13, 1991, p. A-1.

d. Los Angeles, CA -- AQMD plan contingency measures include: Smog taxes on gasoline and diesel fuels; official odometer readings, perhaps corresponding with smog checks, which would be used to calculate a pollution fee based on mileage and the model year. A 1983 car, say the example in the proposed plan, could be assessed $88.90 for 10,000 miles; smog charges in addition to regular rates at parking lots; prohibiting lone drivers from entering the freeway system during summers, the Los Angeles smog season; summertime rationing of gasoline and diesel fuel; requiring work at home and shutdowns of most government offices during Stage 1 smog alerts; limiting the number of vehicles registered in the 4-county area. "Officials Hope to Drive Up Costs of Solo Commuting" Los Angeles Times April 9, 1991, p. A-5.

6. **Vehicle Buy-Back Programs**

a. Los Angeles -- UNOCAL to purchase 7,000 pre-1971 automobiles through automobile repurchase program SCRAP (South Coast Recycled Auto Program). UNOCAL also to offer free engine tune-ups to owners or pre-1975 automobiles during the off-year of the State's biennial inspection program at its UNOCAL Protech Stations. As third initiative, UNOCAL to fund a highway patrol to reduce traffic tie-ups (six vans outfitted to jump-start batteries, change flat tires, provide air, water, and gasoline to get motorists off the road to nearest service station) "UNOCAL Plans Innovative Emission Reduction Effort in Los Angeles" Environment Week, May 10, 1990 (Newsletter)

b. San Francisco, CA -- Revenues from tolls, taxes, and fees would go toward mass transit and perhaps a plan to purchase and junk older, more polluting vehicles. "San Francisco Commission Drafts Strict Measures for Cleaning Air" Air Water Pollution Report July 16, 1990 (Newsletter)

c. Los Angeles, CA -- The latest SCAQMD smog-fighting plan suggests buying and scrapping 250,000 junkers by 1996. The AQMD envisions a buyback foundation financed by corporate contributions. One question is whether a large-scale buyback program could make California "a magnet for junkers". People would bring them to sell them to UNOCAL or to sell them to people who sell their cars to UNOCAL.

From June through October of 1990, UNOCAL and Ford Motor Co. bought more than 8,000 pre-1971 cars for $700 apiece for the demonstration, a public-relations gesture. Sellers had to register their cars in the 4-county areas under the AQMD's jurisdiction.

Also, they needed to prove they had owned the cars for at least 6 months. The autos had to be driven to the downtown scrap where transactions were consummated. "Junkers -- Targets in Smog War." Los Angeles Times March 20, 1991, p. 1-A.

d. California -- Two new programs in California will buy and scrap older cars. In December 1989, the State of California and the City of Salinas reached an agreement under which a proposed cogeneration facility would "mitigate environmental effects to the level of insignificance" through the buyback of older passenger cars in the area. Under the agreement, the O'Brien cogeneration plant will buy and scrap 120 vehicles annually, if that many can be acquired from the fleet registered in the Monterey Bay air pollution district, or 175 vehicles annually, if vehicles registered in the San Jose SMSA are included. To the extent that actual emissions from the facility in a year vary from a total of 169.3 tons/year, the number of vehicles purchased will be multiplied by the ratio of the sum of total emissions of VOC, NO_x, and CO in tons to 169.3.

UNOCAL announced in April 1990 that it would buy and scrap up to 7,000 pre-1971 model cars currently registered in the Los Angeles area through a flat offer of $700 per vehicle. The program is intended to demonstrate one means of lessening air pollution in the area. Contributions by Ford Motor Co. and local Ford dealers have expanded the program by about 1,000 vehicles. UNOCAL expects to complete the program by mid-September 1990. Reducing Emissions From Older Vehicles, Robert Anderson, American Petroleum Institute, Research Study #053. August 1990, p. 31.

7. **Clean Vehicle Rebates Through Reduced State Sales Taxes**

a. California – DRIVE+ (demand-based reduction in vehicle efficiency plus improvements in fuel economy) is to give drivers who buy new, efficient, clean vehicles rebates through reduced State sales taxes. "Alternative Fuels: Pickens, Energy Group Push Incentives for Consumers Who Buy Clean Cars." Energy Report, December 10, 1990 (Newsletter)

b. California -- Reintroduced an auto-pollution tax to double the State's usual 4.5% sales tax for a car that pollutes a lot and waive the tax on a low-pollution model. "The Greening of Detroit" Business Week April 8, 1991, p. 59.

c. California -- might require auto makers to withhold some models from the California market to achieve higher overall fuel economy. Or, more likely, a "fee-bate" plan where the State would charge a fee to people who buy less fuel-efficient cars and give rebates to those who buy fuel-stingy ones. "Bold Designs, Exotic Fuels Seek to Curb Oil Appetite" Los Angeles Times March 25, 1991, p. 1-A.

d. Washington State -- To encourage the purchase of cleaner-running cars, a $125 sales tax would be slapped on the worst polluters. Covering about a quarter of all new-car sales, the list would include most luxury cars, most light trucks, and a few economy models. Also, motorists would pay an annual $2.50 fee with their vehicle registration. "Who Would Get Hit the Hardest?" Seattle Times March 7, 1991, p. B2.

e. California, Massachusetts -- The California House and Senate in 1990 enacted a "Drive-Plus" initiative, which finances rebates for relatively efficient and nonpolluting motor vehicles by taxing the poorer performers in the same vehicle classes (CA Senate Bill No. 1905 1990). This sliding scale fee-rebate system addresses emissions of hydrocarbons, NO_x, CO, and PM, in addition to CO_2. Although Drive-Plus was vetoed by outgoing California Governor George Deukmejian, it is expected to be reintroduced in 1991. "Statehouse Effect Combats Greenhouse Effect" Cavanagh, Ralph C. and Arthur H. Rosenfeld. The Journal of State Government. Vol. 63, p. 95.

f. California -- An interesting variant on the rebate approach is the revenue-neutral "feebate," a self-financing mechanism that charges fees to purchasers of inefficient products and uses those funds to provide rebates to purchasers of efficient products. A feebate bill for cars passed the California legislature in 1990 by a 7 to 1 margin but was vetoed by outgoing Gov. Dukmejian. It proposed a 7% tax (the going rate) for the average vehicle, zero tax for the most efficient models, and a 13.5% tax for the worst performers. A $20,000 gas guzzler would therefore cost an additional $1,300 under this plan. The new governor, Pete Wilson, is said to support the idea, and proponents are pushing for greater rewards and penalties in the bill's next version. Meanwhile, Massachusetts legislature is considering a similar measure. "How to Improve Energy Efficiency" Shepard, Michael Issues in Science and Technology Summer 1991, p. 90.

8. **Fee on High Emission Fuels**

   a. San Diego, CA -- San Diego Association of Governments is considering a polluting fuels fee on fuel distributors to discourage use of high emission fuels. "Around the States: CALIFORNIA -- Some San Diego Motorists Spoke Sharply Against an Emissions Fee" Air Water Pollution Report June 10, 1991 (Newsletter)

9. **Congestion Pricing**

   a. San Francisco, CA -- With "congestion pricing," cars might be fit with electric transponders and the drivers hit with a fee every time they pass key congestion points. "A Push To Cut Traffic 35% in 7 Years" San Francisco Chronicle January 16, 1991, p. A1.

   b. Los Angeles, CA -- The Southern California Association of Governments (SCAG) has called for establishing a pilot project with roadway congestion fees. Most likely, the experiment will be conducted on a 10-mile stretch of the 91 Freeway in Orange County, where a private company plans to open 4 express lanes in 1994 alongside the existing 8 public lanes. Officials envision a $2 toll during rush hours and $1 toll at other times. Car pools, at least for the first 2 years, would ride free. "Officials Hope to Drive Up Costs of Solo Commuting" Los Angeles Times April 9, 1991, p. A-1.

   c. Singapore. In Singapore, road pricing (which made its debut in 1975) consisted of buying a special license that was required to drive in the downtown area. But with new Intelligent Vehicle Highway Systems (IVHS) technology, the technique is becoming electronically monitored and more sophisticated. "Road Pricing Can Increase Mass Transit But Risks Opposition From Motorists" Urban Transport News. March 21, 1991, p. 42. (Newsletter)

   d. Cambridge, England. City officials are considering a road pricing strategy that might take effect in 1996. Under the Cambridge plan, motorists would pay for becoming involved in traffic congestion.

      Each car that travels into downtown Cambridge would be required to have an electronic meter. Roadside beacons would automatically switch on the meters when the cars entered the city and switch the meters off as the cars left. While the cars were in free flowing traffic, the meters would not register a charge. But if the vehicles hit congestion, the meters would start to clock up a charge for as long as the motorists were stationary. The charge would start when the vehicles made 4 stops in 500 meters.

Motorists would not be able to operate their cars without the meters running. They would have to buy prepaid electronic cards to put into the meters. If the cards ran out of credit, the next time the motorists shut off their engines for more than 30 seconds, the engines could not be restarted. "Road Pricing Can Increase Mass Transit But Risks Opposition From Motorists" Urban Transport News. March 21, 1991, p. 42. (Newsletter)

e. Los Angeles, CA. In the U.S., the closest thing to road pricing is the Los Angeles area's Regulation XV. Major employers are required to increase ridesharing by employees or face stiff fines. But another Southern California proposal would require motorists to buy special passes to use the freeways. Motorists who rideshare would not need passes. "Road Pricing Can Increase Mass Transit But Risks Opposition From Motorists" Urban Transport News. March 21, 1991, p. 42. (Newsletter)

f. California -- In late February, the University of California Transportation Center (UCTC) and a group of invited participants from government and industry met in San Diego for a 2-day workshop on congestion pricing. Congestion pricing seeks to alleviate traffic problems by charging motorists for their contribution to congestion--raising and lowering transportation fees according to levels of congestion at specific times of day and at specific locations. Several workshop sessions centered around pricing experiments to take place on privately owned-and-operated toll roads.

Developers of some privately built highway projects are considering applying variable tolls--prices that would vary as levels of congestion vary, thus offering motorists an incentive to leave a crowded highway and ride the congestion-free toll road, or to leave their cars at home and ride public transit. "UCTC Contributes to Education and Research" ITE Journal February 1991, pp. 2-3.

10. Parking Fees at Shopping Centers

a. California -- Earlier proposals called for harsher $3-a-day fees, not only at work, but at malls and movie theaters, and on streets. "Employee Parking Fee Plan Shelved" San Jose Mercury News February 28, 1991, p. 1-C.

b. Los Angeles, CA -- The 1991 AQMD plan will require employers of staffs of at least 50 to expand ride-sharing. Students ar colleges and possibly at high schools also will be targets of ride-sharing programs. Shopping Centers, stadiums, concert halls and other so-called "event centers' also will be required to come up with similar programs to

reduce traffic (such as imposing limits on free parking at shopping centers). "AQMD Approves Changes to Region's Clean Air Plan" Los Angeles Times July 13, 1991, p. A-1.

c. Los Angeles, CA -- One rule, anticipated for AQMD consideration by 1995, would require facilities such as stadiums, concert halls, shopping malls, and civic auditoriums to develop programs to reduce the number of cars they attract. Such as parking lot fees and shuttle buses. "40 New Rules Proposed to Clean Southland Air" Los Angeles Times February 1, 1991, p. A-5.

11. Pay As You Drive Automobile Insurance

a. Pay As You Drive (PAYD) is a proposal for automobile insurance which charges for insurance at the gas pump, raising the apparent price of gasoline by about $1/gallon. This proposal would reduce the gasoline use of existing cars by 10% in the short term and by up to 30% in the long term, improve the market for fuel-efficient cars, and solve the problem of uninsured motorists, who add about 25% to premiums.

Although the risk of an auto accident is proportional to annual miles driven, U. S. insurance premiums are only about 15% less for low or zero-mileage drivers. PAYD benefits these drivers because premiums are proportional to actual miles driven. "Statehouse Effect Combats Greenhouse Effect" Cavanagh, Ralph C. and Arthur H. Rosenfeld. The Journal of State Government. Vol. 63, p. 95.

b. California -- A fuel surcharge of 50 cents/gallon would cost the average California motorists $300/yr. But if your insurance bill were cut by more than that, you might find very attractive the idea of paying for auto insurance at the pump.

Under the "Pay as You Drive" proposal recently put to the California Energy Commission by energy expert Mohamed El-Gassier, the new fuel surcharge collected by gas stations would be turned over to a new fund created within the Franchise Tax Board. This fund would take a small amount off the top to cover its costs of operation and pay the rest, on the basis of a fixed amount per insured vehicle, over to everyone's individual auto insurer. There would be no additional matching. The insurers would charge extra for additional insurance coverage.

El-Grassier predicts that by having the driving public pay for auto insurance as they drive, people would modify their behavior. More commuters would carpool or take public transportation. To make sure the insurance program is fair for both drivers with bad records and novice drivers, the new State fund could be told to collect some of its revenues from additional charges on drivers' license based on one's driving experience and recent record of moving violation citations. Also, some of the plan's revenue could be collected with the annual registration of the vehicle--the amount paid based upon the safety record of the model. "Pay-At-The-Pump Auto Insurance?" Sacramento Bee June 9, 1991, p. F-1.

C. Carpooling/Ride Sharing

1. Carpooling/Ridesharing Programs

a. San Mateo County, CA. An unusual public/private partnership has developed among 6 cities which have formed a joint powers authority (JPA) to support mutually adopted transportation systems management (TSM) ordinances. Following formation of the JAP, the cities subcontracted with the San Mateo County Transit District to assist in overseeing the administration of the effort.

The intercity TSM ordinances require the participation of every employer in the 6 cities, as well as the sponsor of every multi-tenant, non-residential building or group of buildings under common ownership. The 4-year objective of these ordinances is to achieve a 25% employee participation rate in alternatives to the use of single-occupant vehicles for commuting during peak traffic hours.

The authority is self-funded through a voter-approved 1/2-cent sales tax passed in 1988 to fund transportation improvements. In fact, the San Mateo County Transportation Authority, which determines funding priorities and investment policies for the accumulated sales tax revenue, has stipulated that a city in the county may receive funds only if it has enacted a TSM ordinance. "San Mateo Cities Fight Traffic Congestion" American City & County March 1991, p. 26.

b. Connecticut -- Connecticut's ride-sharing program is cutting CO_2 emissions by about 83,000 tons/yr. "Global Warming--Too Hot to Handle" State Government News August 1991, p. 10.

c. Walnut Creek, CA -- In 1987, the City Council adopted Walnut Creek's original employee commute incentive program. It offered employees $15 transit discounts and a drawing for lunch for 2 to those using a commute alternative. Little result. In January 1990, the Council approved a plan which offered a new set of employee benefits to those employees using commute alternatives. In a 3-pronged approach, employees who use a commute alternative (walking, biking, transit riding, carpooling, or van pooling) can win money, receive a transit discount, and earn time off.
Within each 10-day pay period, an employee who uses an alternative can earn commute credit (a form has been designed to record their activity). If an employee uses an alternative at least 3 times/week, he/she automatically earns a 1/2 hour of time off. An employee using an alternative at least once in 2 weeks can enter a drawing for a $25/day award for each day he/she used an alternative (up to $250 for a 10-day pay period). Discounted transit passes are also sold to employees: one per month at the maximum allowable Federal limit of $15.

An additional inducement is a Guaranteed Ride Home program. This ensures employees will be able to use a city vehicle or have someone drive them. This policy provides security to employees who might be stranded without a car.

Citywide, employers are averaging a 15% participation rate with their employees, while city employees are maintaining a 26% participation rate. "Changing the Drive Alone Habit"
Grant, Joanna R. Western City June 1991, pp. 13-14.

d. Phoenix, AZ -- The 1988 Arizona Omnibus Air Quality Bill requires companies with 100 or more employees at any site to reduce the number of miles they drive solo in their cars by 5% during each of the next 2 years. This Travel Reduction Program currently affects 477 Valley employers at 727 work sites with some 380,000 employees, nearly 1/3 the valley's work force.

Some of the programs Valley businesses are using to help them meet their goal:

- One law firm is paying 100% of the cost of bus passes for employees who ride the bus.

- Sundstrand Aviation Operations offers rent subsidies to employees in nearby apartments.

- At the Chandler Regional Hospital, 33 full-time employees have agreed to work 3 12-hour days instead of the usual 5 8-hour days. 5 more are working 10-hour days.

- The Sunburst Resort in Scottsdale is providing guaranteed transportation for employees who car pool but might need a ride home at odd times for emergencies.

- Motoral Government Electronics in Scottsdale is making showers available to employees who want to bike to work.

The voluntary "Don't Drive One in Five" program, and a tightened vehicle emissions check program also seem to have helped. In addition, by law, all gasoline dispensed in Maricopa County from Oct. 1 to March 31 must contain additives to make the fuel burn cleaner -- MTBE or alcohol.

Checks at neighborhood sites show that since Oct. 1 there has been only 1 day in the valley (in mid-Dec.) in which the concentration of CO exceeded Federal standards. That's down from 3 such days last year; and 11 days the year before that. "Thumbs Up For Car Pooling--Valley Air Improves as Employers Offer Workers Incentives" Phoenix Gazette Thursday, March 21, 1991, p. D-10.

e. San Mateo County, CA -- The San Mateo County Transit District (SamTrans) recently introduced an employer discount pass program. The program simplifies the purchasing and subsidizing of SamTrans monthly passes to area employees. Employers who join the program can sell the SamTrans passes to their employees for a 5% discount. "San Mateo Introduces Employer Discount Pass Program" Urban Transport News May 2, 1991, p. 72. (Newsletter)

f. Philadelphia, PA -- Thousands of mass transit riders in the Philadelphia area could be eligible for a $15/month tax-free subsidy to help pay for their use of public transportation under a program announced this month by local officials. Corporations in New Jersey, Pennsylvania, and Delaware are being asked to give their workers the subsidy under terms of the 1984 Federal Deficit Reduction Act and the Tax Reform Act of 1986, which allow tax-free fringe benefits. Government and transit officials describe it as a major new effort to encourage use of mass transit.

Under the Commuter Benefit Program, participating area companies will give employees tax-free transportation subsidies of up to $15/month, issued in the form of vouchers called TransitCheks. The vouchers can be bought from the Delaware

Valley Regional Planning Commission, the group that developed the plan. The vouchers can be used on SEPTA, NJ Transit,Amtrak, PATCO, and all transit operators in Delaware.

Only 1 company, Keystone State Life Insurance, has signed up for the program. But 55 other firms have expressed an interest, including the PA Dept. of Transportation. "Marketing Moves: Transitchek to Give Philadelphia Commuters Tax-Free Subsidy" Urban Transport News June 27, 1991, p. 04. (Newsletter)

g. Los Angeles, CA -- The Southern California Rapid Transit District (RTD) is offering a computerized planning service that gives drivers personalized schedules for taking the bus between destinations. Employers can pay the RTD $150 for a computer disc that is used to plot the schedules. The commuters list their company location, home address, and the times that they travel to and from work. RTD customers service representatives then plan a route for each employees. Within 10 days, the commuter receives a schedule, which includes an alternate route, the estimated trip time, and the cost. So far, 20 companies have signed up for the program's customized schedules at a cost of 48 cents per employee.

The RTD plans to expand the program soon to include a telephone service. Callers would be able to receive printouts of schedules instantly at their companies. Other plans call for a bilingual version of the service and a voice-activated computer calling system for fast information. "L.A. Offers Customized Route Schedules on Computer Disc for RTD Passengers" Urban Transport News February 21, 1991, p. 38. (Newsletter)

2. **Businesses Required to Submit Trip Reduction Plans**

a. South Coast -- SCAQMD now requires companies with 100 or more employees to encourage alternative commuting through special parking places or lower parking fees for car pools. "Southern California Clean-Air Agency is Criticized; Environmentalists Assail Proposed Delay But Union Leaders Call Plan Too Hard on Poor" The Washington Post, May 1, 1991. Section A, p. 20.

b. South Coast -- SCAQMD draft update of its 1989 plan has 40 new control measures. One being an extension of the district's rideshare incentive program--from firms with 100 employees or more to those with 50 workers at a site. The update also proposes many market incentives aimed at increasing the flexibility of air pollution programs, with a "trading market" for air pollution permits and new

emission fees for high-polluting automotive engines among them. "California" Air Water Pollution Report February 11, 1991 (Newsletter)

c. South Coast -- SCAQMD will make employers responsible to encourage their employees to carpool, ride share, and ride buses to and from work to reduce single occupancy vehicles (Regulation XV). Each employer must submit a trip reduction plan called a "transportation demand management" (TDM) program for achieving average vehicle ridership (AVR) targets of 1.75 per vehicle for central Los Angeles, 1.5 for remainder of Los Angeles-Orange-Inland Empire metropolitan area, and 1.3 for areas beyond metropolitan limit.

Suggested methods include: direct financial incentives for ridesharing; establish carpool, buspool, or vanpool programs; partial or full subsidy of parking for ridesharing employees; allowance for employees to use company-owned fleet vehicles for ridesharing purposes; preferential parking for vehicles used for ridesharing; facility improvements that provide preferential access/egress for ridesharing employees; active use of computerized ridesharing matching services such as Commuter Computer; compressed work weeks (4 days or 10-hour work days) or other flexible work hours that facilitate employee ridesharing; "telecommuting" -- working at home.

According to a city ordinance, Los Angeles employers who have 100 or more employees and offer free or subsidized parking to employees must offer a $15/month transit subsidy to each employee to use in commuting. The $15 subsidy may be provided either as transit passes, tickets or bus tokens, or tickets in the amount of $15/month. The ordinance imposes a penalty of $100/day for each separate violation of the ordinance. Monies collected as penalties are to be placed in an employee transit subsidy account. Freedman, Jeffrey C. "Commuting and Polluting" Los Angeles Lawyer, February 1990, pp. 11-13.

d. Thousand Oaks, CA -- One attorney warned about the broadened financial liabilities employers will face with worker's compensation . If companies actively participated in setting up car pools and van pools, injuries to workers coming or going from work will most likely be covered under workers' compensation. Monthly raffles of prizes as carpool incentives might be gambling. Employers also cannot fine employees or reduce their salaries if workers choose not to ride share. "Employers Discuss Commuting" Daily News of Los Angeles February 22, 1991, p. T-1.

e. Seattle, WA -- A bill passed the House that would require public and private employers -- eventually those with as few as 50 employees -- to devise ways to reduce single-occupancy vehicle trips by their workers. Reducing auto trips might involve incentives such as subsidized transit passes, assistance in forming car pools, employer-sponsored van pools, and stiff fees for parking g that is now inexpensive or free.

A great idea on paper will soon be a reality at the University of Washington in the form of a U-PASS, a plan to get students, faculty members, and staff people out of their cars. Instead of commuters driving alone, an inexpensive U-PASS will invite them to explore cheaper, more efficient travel alternatives. "Kicking the Habit Regional Air Quality is Driven to Distraction" Seattle Times March 24, 1991, p. A-18.

f. Los Angeles, CA -- If approved, SCAG will be asking local governments to take these steps by January 1: eliminate free parking for employers of 100 or more and replace the benefit with a transportation allowance. An ordinance covering employers or 25 or more should be passed by Jan. 1, 1994; increase daytime parking fees at metered spaces and public lots; establish parking surcharges for single-occupant vehicles or discounts for car pools; require employer-sponsored preferential parking for car or van pools.

A bill has been introduced to phase out deductibility of employee parking as a business expense. The bill also exempts from State income tax any money paid to employees to replace free parking. "Officials Hope to Drive Up Costs of Solo Commuting" Los Angeles Times April 9, 1991, p. A-5.

g. Los Angeles, CA -- Ride-sharing may unfairly affect some poor and minority commuters. Los Angeles County imposed high parking fees to discourage workers from driving solo. Since last October, fees averaging $50 a month have been deducted from workers' paychecks. $50 is not the same to somebody who's making $40,000 a year as it is to someone making $13,000. The board was asked to set up a grievance procedure so workers can appeal plans they believe are discriminatory. "Smog-Fighters Concede Ride-Sharing is Unfair to Some" Los Angeles Times March 2, 1991, p. A-31.

3. **Examples of Employees Incentives**

a. Current law allows employers to subsidize their workers' parking as a 100 percent nontaxable fringe benefit, no matter how high the cost. Transit subsidies, however, are limited to $15/month as an untaxed benefit. Any subsidy exceeding $15/month is entirely taxable as income to the employee and loses its deductibility for the employer. The inequity is most unfair to lower-income workers. Endorsed a bill to increase the tax-free benefit for transit passes to $60. "Tax Code Unfairly Favors Parking Over Transit as Employee Fringe Benefit, House Told" Urban Transport News March 8, 1990 (Newsletter)

b. Lancaster, CA -- Lancaster's plan offers an $18-a-month subsidy for bus passes, gives workers $75 a year for walking or jogging shoes, $75 to bicycle riders and 8 cents a mile for every car-pool driver with one passenger and 2 cents for each additional passenger. To qualify, workers must reduce the car trips to work by at least half. Since posters have been put up and fliers sent out, 20 of the 148 city employees have expressed interest. "Plan Tries to Clear the Air" Daily News of Los Angeles April 29, 1991, p-AV1.

c. Palmdale, CA -- Palmdale's plan offers $50 a year for walking shoes, preferential parking places for car poolers, $15 a month for bus passes, and $10 a month for car poolers toward a car-related item or service such as on oil change or brake work. Both cities will have monitors do periodic spot checks of the City Hall parking lots and surrounding areas to make sure employees are car pooling, walking, biking, or taking public transportation "Plan Tries to Clear the Air" Daily News of Los Angeles April 29, 1991, p-AV1.

d. Glendale, AZ -- One hotel offers valet parking to workers who come to work in a car pool. One company struck a deal with a nearby apartment complex to offer lower rents for employees who travel to work by bus. Another business provides shaded parking spaces for those who commute in a car pool. That is no small benefit in summer months in the desert. "Town Uses Stolen Bikes in Fight Against Smog" Daily News of Los Angeles May 19, 1991, p. U3.

e. Glendale, CA -- At the J.C. Penney store in Glendale, employees who walk to work can qualify for free walking shoes, bus riders can earn free bus passes, and car poolers can enter a drawing for $100 J.C. Penney gift certificate. "Slow Ride Major Deadline for Area's Carpool Program Brings Lackluster Response from Businesses" Daily News of Los Angeles May 27, 1991 p. B-1.

f. Los Angeles, CA -- Atlantic Richfield Co. offers a $100 a month transportation allowance, hosts introductory meetings over a free lunch, and gives away T-shirts and mugs. "Slow Ride Major Deadline for Area's Carpool Program Brings Lackluster Response from Businesses" Daily News of Los Angeles May 27, 1991 p. B-1.

g. Lancaster, CA -- Some of the 1,400 Antelope Valley Hospital Medical Center employees can walk, bike, or car pool their way to Hawaii under a plan proposed to reduce air pollution. The hospital is offering the annual, free week-long trip to the Aloha State as an incentive to participate in a $19,000 plan encouraging workers to shift from their solitary drives to work to less-polluting modes of transport such as car pooling, riding bikes or walking. Other incentives being offered by the hospital include a 4-day cruise to Mexico, gift certificates to mall shops, dinners at local restaurants, movie tickets, guaranteed rides home and preferential parking places. "A.V. Hospital Board OKs Ride-Sharing Incentives" Daily News of Los Angeles May 28, 1991, p. AV1.

h. Monrovia, CA -- The McDonnell Douglas' electronic branch has eliminated reserved parking spaces for executives and given them to those who ride-share. Group Seeks Voice for Employees in Firms' Traffic Reduction Plans" San Jose News March 2, 1991 p. 2E

i. California -- Capital Records in Hollywood has responded to the rule by offering its workers free compact discuss, tapes, sweatshirt, denim jackets, movie passes, and other merchandise if they share rides and by subsidizing the cost of monthly bus passes. The result is that nearly 400 workers now average 1.25 persons per car.

At Chiat/Day Advertising in Venice, incentives for car pooling include tickets to Los Angeles Dodgers baseball games and Los Angeles Kings hockey games. The firm has also brought into the workplace dry cleaning, shoe repair, grocery and other services so people will not need their cars to do errands.

Other companies give workers who participate in car pools parking places closer to the office and the right to use express lanes at the company cafeteria. "Environmental Protection Smog, Drought Force New Remedies in California" Boston Globe February 18, 1991, p. 1.

j. Los Angeles, CA -- The AQMD revised smog reduction plan includes an option that would give employees extra time off for car-pooling or using an alternative means of transportation to get to 3 city sites -- City Hall, the corporate yard, or the police department.

City officials envision adding a line or box to employees' time sheets to determine the method used to get to work. Administrators plan to assign points to various methods and eventually award days off based on accumulated points. "Anti-Smog Proposal OKd for City Staff" Los Angeles Times January 22, 1991.

k. Long Island, NY -- Every employer of more than 100 people must reduce the number of cars coming into its parking lot -- partly by getting 25 percent more people in cars or vans. The rule applies to both public and private entities and would affect more than 1,300 work sites in Long Island. Employers would have until 1994 to submit a plan and until 1996 to comply. Planners foresee new measures: cash bonuses paid by the businesses and special parking places for car poolers, or new parking charges for noncar poolers. Adopting flexible work shifts, including 4-day work weeks, "telecommuting" "Car Pools Ahead New Clean Air Act Provides For 'Gun-to-Head' Plans to Reduce Air Pollution" Newsday March 25, 1991, p. 5.

l. Simi Valley, CA -- Has opted for financial incentives to persuade workers to car-pool, or use alternative means of transportation. Under the Simi Valley plan, employees will receive $3 for every day that they avoid solo drives. "Oxnard Assails Smog Rules in Delaying a 4-Day Work Week Plan" Los Angeles Times July 10, 1991, p. 1-B.

m. Los Angeles, CA -- Under the traffic reduction program scheduled to go into effect next January, employers will be required to subsidize their employees' transit fares or car-pool and van-pool costs. Employees who walk or bicycle to work also will be reimbursed. If the enticements of subsidies fail to do the job by 1994, employees who continue to drive alone to work will face parking fees starting at $30/month and rising to $100/month by 1997.

About 12,000 businesses will be placed under the district's program within the next 4 years. Employers of 50 or more workers will implement the program next January; firms employing 25 to 49 workers will start in January 1993; firms with 11 to 24 employees will begin in January 1994. Each firm will have 2 years to meet its goals before penalties and parking fees are imposed. "Businesses Balk at Implementing Proposed Traffic Reduction Plan" Los Angeles Times June 27, 1991, p. B-2.

n. San Diego, CA -- After complaints from businesses during a series of hearings on the regulations, the proposed fees were delayed until 1994 and modified so that employees of firms nearer to their traffic-reduction goals will pay lower fees. The proposed rules still call for mandatory employer subsidies for employees' transit fees, or car pool and van pool costs, as well as reimbursements for employees who walk or bicycle to work. "Emphasis Shifts on Clean-Air Rules" Los Angles Times July 31, 1991, p. 2-B.

o. Los Angeles, CA -- If approved, SCAG will be asking local governments to take these steps by January 1: eliminate free parking for employers of 100 or more and replace the benefit with a transportation allowance. An ordinance covering employers or 25 or more should be passed by Jan. 1, 1994.; increase daytime parking fees at metered spaces and public lots; establish parking surcharges for single-occupant vehicles or discounts for car pools; require employer-sponsored preferential parking for car or van pools.

A bill has been introduced to phase out deductibility of employee parking as a business expense. The bill also exempts from State income tax any money paid to employees to replace free parking. "Officials Hope to Drive Up Costs of Solo Commuting" Los Angeles Times April 9, 1991, p. A-5.

p. Washington State -- The giant Boeing Aircraft is offering all of its 103,000 employees in 8 locations in the Seattle area a $15 subsidy is they buy a bus or van pool pass on Seattle metro. It's part of the company's effort to lure more people out of their cars and increase group ridership by at least 15%. About 300 Seattle-area businesses subsidize employee's bus passes. "Regional, State, Local Briefs" Urban Transport News January 10, 1991, p. 214. (Newsletter)

q. Bellevue, WA -- Metro transit officials enlisted the help of area employers in a campaign that started last month to promote ridesharing by commuters. The campaign is called Rideshare for Clean Air and is targeted primarily at people who work in the fast growing Interstate 90 Eastgate corridor. Participating employers agree to register and track all ridesharers in their companies. The workers register with the employers after 1 month of ridesharing and turn in monthly tracking reports. For each month of ridesharing by an employee, the employer agrees either to give the worker a reward or to make a donation to an environmental cause.

Every 3 months, Metro plans to draw names from a pool of registered ridesharers. The winners receive dinners, weekend trips and other donated prizes. "Marketing Moves: Bellevue Uses Lottery as Incentive to Rideshare" Urban Transport News February 7, 1991, p. 24. (Newsletter)

4. **Businesses Charging for Employee Parking**

   a. San Francisco, CA -- San Francisco Commission proposal includes charging employees a $75/month parking fee and employer-subsidized car and van pools. Plan also calls for cleaner-burning vehicle fuels and special traffic signals and other considerations for commuters on bicycles. "San Francisco Commission Drafts Strict Measures for Cleaning Air" Air Water Pollution Report July 16, 1990 (Newsletter)

   b. San Diego, CA -- San Diego County's Air Pollution Control District proposal to charge employees for otherwise free parking to increase average 1.2 person/vehicle ridership to 1.5 during rush hours. Annual graduated fees (to defray expense of reviewing employee plans) to be based on company's success in increasing ride-sharing with a roll-back in fees as employers near their ride-share goals. "San Diego County Air Pollution Control District has Suggested Relaxing Proposed Regulations" State Environment Report July 10, 1991 (Newsletter)

   c. San Diego, CA -- The Air Pollution Control District is proposing that businesses that fail to meet ridership targets through increased car-pooling and public transit could be forced to eliminate free parking or parking subsidies to their workers. Starting in 1994, those employers could be required to charge workers $50/month to park even in company lots and by the year 2000, as much as $100. Companies would have to pick up the total cost of workers' bus, trolley, or other transit expenses. "Concerns Cross County Borders" Los Angeles Times April 28, 1991 p. A-45.

   d. San Diego, CA -- Under the proposal, businesses that fail to meet ridership targets aimed at reducing drive-alone commuters through increased use of car-pooling and public transit could be forced to eliminate free parking or parking subsidies to their employees. Starting in 1994, such businesses could be required to charge employees $50 a month to park even in company-owned lots where parking is now free, as well as pay half of other workers' transit passes. Arguments against the plan say that it would impose costly paperwork requirements on businesses. The plan would permit exemptions for certain businesses or employee groups within

individual companies whose unusual work hours would make car-pooling or even mass transit impractical. In order for those parking fees to serve as an effective deterrent to one-passenger cars, the regulations would require that the cost be paid by drivers themselves, not by their employers. However, county administrators concede that it could be difficult to verify whether, for instance, companies might simply increase workers' salaries to compensate for the parking fees. "Free Parking for Workers May Vanish" Los Angeles Times March 14, 1991, p. B-1.

e. San Diego, CA -- The most controversial element of the San Diego San Diego air plan is one that would eliminate free parking and cost employees no less than $50/month if they drive to work alone. Two years into the program, the parking fee would jump to $100/month if employers failed to encourage a fraction of their employees to car-pool and ride public transportation. The plan would also require employers to provide a monthly public transit subsidy equal to 50% of the transit fare. The subsidy could increase from $40 to $60 in 1991-92 and to $100 in the year 2000. "Clean-Air Proposal Results in Show of Discontent, Anger" Los Angeles Times May 2, 1991, p. B-1.

f. San Diego, CA -- Originally, the APCD plan called for mandatory parking fees to be levied on all solo commuters by their employers when the program goes into effect in 1992. Those employee parking fees, ranging from $30 to $100 a month have been delayed until 1994 and have been modified so that employees of firms closer to their traffic-reduction goals will pay lower fees. One downtown bank has already surpassed its goal of getting employees off the road simply by subsidizing the cost of their employees' bus and trolley passes. "Air Panel Drops Fee Plan to Give Firms a Chance to Clean Up Acts" June 25, 1991, p. B-1. "Air Panel Drops Fee Plan to Give Firms a Chance to Clean Up Acts" Los Angles Times June 25, 1991, p. B-1.

5. **Tax Breaks for Employers That Encourage Commuting**

a. A new bill introduced in Congress last week would give employers a tax break if they provide subsidies for workers who use mass transit. The bill, H.R. 1442, was introduced by Rep. Thomas Foglietta (D-Penn). It would change the tax laws to make mass transit subsidies treated as a fringe benefit for workers, which could be deducted from the employers' taxes. "Tax Break Proposed for Transit Subsidies" Urban Transport News. March 21, 1991., p. 42. (Newsletter)

b. New Jersey -- New Jersey's Gov. Jim Florio this month called for a change in the Federal Tax Code to allow employers a bigger deduction for subsidizing employees who use mass transit. Florio said it was unfair that under Federal tax laws, employers can give tax-free parking benefits to their employees who drive, but only a $15/month tax-free subsidy to employees who buy monthly bus or rail tickets. Florio said he is supporting legislation in Congress to allow companies to offer monthly subsidies of at least $60/month to employees who use mass transit or vanpools to get to work. "New Jersey Governor Proposes Subsidy for Commuters to Use Mass Transit" Urban Transport News May 2, 1991, p. 68.

6. **Telecommuting**

a. Los Angeles County, CA -- For the past 2 years, employees of the country's first county administered telecommuting program in the office of contract monitoring have been telecommuting 4.5 days/week. Approximately 5-1/2 million people in the U.S. telecommute with 240,000 workers coming from the public sector. The program, which began 2 years ago, now has 1,700 workers and is composed of employees with a broad range of job skills. About 50% are computer related, and productivity has increased by 20%. The average participant telecommutes 2 days/week. "Telecommuting Trends Rising" PA Times September 1, 1991, p. 1.

b. United States -- The Federal Government began a program in July 1990, which has 12 participating agencies and 400 telecommuters. Employer benefits include: increased productivity, reduced cost of office space, increasing staff without adding space, reduced absenteeism, and a reduced number of commuting trips. "Telecommuting Trends Rising" PA Times September 1, 1991, p. 1.

c. California, Washington, Hawaii, and Arizona -- Telecommuting allows people to work at home-based or satellite offices instead of commuting every day to work. In the West, California, Washington, Hawaii, Arizona, and private companies are launching telecommuting demonstration projects. Larson, Douglas C. "Transportation: America's Energy Achilles' Heel" The Council of State Governments, p. 89.

d. Southern California -- There are 2 main forms of telecommuting: 1) Working from home and 2) Working at a regional telework center. A regional center can be anything from a neighborhood storefront office with a few telecommuters to a large office building with hundreds of telecommuters. The average amount of work time spent telecommuting was 6.5 days/ month in 1989. The number of

days per month does tend to increase with experience. In the future, a growing number of telecommuters will work at regional telework centers. California has authorized development of a prototype telework center in San Bernadino or Riverside County.

Based on data from the Telecommuting Pilot Project conducted from 1987 through 1989 by the State of California, the average telecommuter's phone bill increases by about $10/month. The net impact was a benefit of almost $990,000 for the 150 telecommuters in the project, or about $6,600 per telecommuter. The project paid for itself and also won an award for innovation from the Council of State Governments.

Los Angeles County and the City and County of San Diego also have test or operational telecommuting under way. Los Angeles County had 900 telecommuters by the end of 1990. "How to Plan For and Supervise Telecommuters" Nilles, Jack M. Western City February 1991, pp. 3-7.

e. Hawaii --Hawaii's State government, with private sector involvement, has opened a demonstration, multi-employer telecommuting center 20 miles outside of downtown Honolulu. "The State of Telecommuting" Mokhtarian, Patricia L. ITS Review August 1990 pp. 4.

7. **Walk/Jog/Bicycle**

a. Colorado -- At Public Service Co. of Colorado, employees will continue to get a dollar each day they walk or jog or bicycle or catch a ride to work. So far, the incentives have helped persuade 340 or 6,500 employees to use alternative transportation most days. "Wood-Burning Ban Again in Effect Today, Season's 17th Bad-Air Alert" Rocky Mountain News January 3, 1991, p. 19.

b. Glendale, AZ -- This Phoenix suburb of 148,000 people has taken its stable of unclaimed bicycles and lent them to city employees. The workers pledge to give up driving at least 3 times a week and pedal to work instead. About 40 city workers are using the bicycles, and there is a long list for more stolen two-wheelers. The employees can keep the bikes after 1 year if they are not claimed. The effort grew out of an Arizona law that requires all Maricopa County employers with 100 or more workers to reduce by 5 percent the number of people who drive to work alone. The state law, which provides no penalties as long as employers provide a good faith effort to comply, has led to some innovative strategies. "Town

Uses Stolen Bikes in Fight Against Smog" Daily News of Los Angeles May 19, 1991, p. U3.

c. Huntington Beach, CA -- In the AQMD, several firms have installed showers and locker room facilities so workers have a place to freshen up after the spin to work. Others have offered monetary incentives. And some have even given free bicycles to employees who don't have them.

At the Nabisco plant in Buena Park, the company budgeted enough money to buy 8 bicycles for employees willing to commit to riding to work at least three times a week for six months. The company also agreed to reimburse those already commuting by bike with $400 each if they met the same criteria. More than 24 of the plant's 400 or so employees are bike commuting today.

McDonnell Douglas, the aerospace company, last week held a sweepstakes to give away 50 new mountain bikes. More than 260 people entered, with the winners are to be selected in the next few weeks. Each person picked must fill out an application pledging to ride to work at least 3 days a week for 3 months. After that, the bike belongs to the rider. "These Bike Riders Find They Can Car Less" Los Angeles Times May 27 , 1991, p. B-6.

d. Irvine, CA -- Officials at the city of Irvine opted to loan bicycles to employees. Several bikes that were impounded by police and never claimed were cleaned up and repaired by a mechanic. So far, 15 people have borrowed the bikes, but officials expect that number to increase. Of the 520 people who work at the civic center, 150 of them live within 5 miles, an easy commute by bike. "These Bike Riders Find They Can Car Less" Los Angeles Times May 27, 1991, p. B-6.

e. Santa Monica, CA -- The city will buy its workers running shoes if they can walk to work and let them take unmarked police cars home at night if they car pool. "Environmental Protection Smog, Drought Force New Remedies in California" Boston Globe February 18, 1991, p. 1.

f. Oxnard, CA -- The Oxnard city plan also calls for installing more showers and bike lockers, and re-striping parking lots to encourage car-pooling. The city would also enter into a contract with a child-care referral service to help employees find child-care providers that offer extended hours. "Oxnard Assails Smog Rules in Delaying 4-Day Workweek Plan" Los Angeles Times July 10, 1991, p. B-1.

g. Ventura, CA -- The City gives preferential parking to car pools and has installed showers with shampoo and hair dryers to encourage riding bikes and jogging to work. Those who share rides or get to work without driving solo also qualify for a $250 drawing held every 2 weeks. Ventura County provides preferential parking for car-pools and offers a $200 annual bonus to those employees who share rides twice a week and $300 for those who do so 3 times a week. "Pollution Rules to Affect Most Commuters" Los Angeles Times April 29, 1991, p. B-2.

h. Simi Valley, CA -- Beginning July 1, the city will offer employees $3 a day to make the morning commute by walking, jogging, riding a bike, taking the bus or forming a car-pool. Simi Valley also plans a compressed workweek for some city employees, but one that staggers the shifts so City Hall does not close on a weekday. "Pollution Rules to Affect Most Commuters" Los Angeles Times April 29, 1991 p. 2-B.

i. Shoreview, Minnesota -- A city with 26 miles of bicycle trails and possibly the only city in Minnesota employing an alternative transportation coordinator, has been exploring the use of small "circulator buses" to carry bicycles and their passengers between destinations that are beyond pedaling distance. A biker could hop on a circulator bus in Shoreview, mount his/her bicycle on the front of the bus, ride to some "distant" location, such as the University of Minnesota campus, and then resume use of the bicycle. "Activities" Minnesota Cities June 1991, p. 45.

j. Seattle, WA and Santa Cruz, CA -- are 2 cities that mount bicycles on their buses, but their buses are larger than the circulator buses Shoreview is considering. "Activities" Minnesota Cities June 1991, p. 45.

k. Duluth, Minnesota -- experimented with bicycle mounts on buses, but isn't using them any more. "Activities" Minnesota Cities June 1991, p. 45.

l. Glendale, AZ -- Like other major employers in Maricopa County, Glendale faces a State mandate to reduce the number of single-occupancy vehicle commutes to and from work by 5% a year (Arizona's Omnibus Air Quality Act of 1988 went to effect in 1989 and applies only to Maricopa County employers with 100 or more employees at a single site). The city, which employs 1,138 people, offers traditional programs like subsidized bus passes and covered, reserved parking spots for car-poolers. However, as part of a new program, 35 employees are given a bike from unclaimed stolen

property recovered by the Glendale Police Department. They have to agree to ride the bike 3 times per week. Typically, after time expires for the bikes' owners to claim them, the city would auction them off. But now, the city obtains the bikes on loan before they can be auctioned, takes them to a local shop where they are inspected and reconditioned, and distributes them. "Pedal Power Propels City Employees to Work" Zolkos, Rodd City & State June 3, 1991, p. 18; Also, "Glendale Workers Use Bike Option" Arizona Republic March 14, 1991, p. B-3.

m. Denver, CO -- Denver's Regional Transportation District bought 6 mountain bikes last month that it lets employees check out for trips between the agency's downtown office and its nearby district operations center. The bikes can also be checked out for lunch time rides or to run errands around town. "Regional, State, Local Briefs" Urban Transport News May 2, 1991, p. 70.

n. California -- The Southern California Rapid Transit District expanded its "Bikes on Bus" and "Bikes on Rail" program last week to allow bicycles on its Blue Line Rail line and one bus line during weekdays. Previously, the bicycles were limited to evenings and weekends for permit holders. "Regional, State, Local Briefs" Urban Transport News July 11, 1991, p. 110.

o. Atlanta, Boston, Milwaukee, San Francisco, Seattle, and Washington, DC-- "Bike and Ride" commuting is becoming more common in these cities. It's cheaper to increase suburban rail use by providing secure bicycle racks and bike lockers than by expanding automobile parking. Permitting bicycles on trains and buses also increases ridership by allowing people to reach destinations that aren't near train stations and bus stops. "U.S. Takes to Two Wheels" Lowe, Marcia D. "WorldWatch" January/February 1991, p. 11.

8. **4-Day Work Week**

a. Oxnard, CA -- The City Council is considering a plan where employees would either work 10-hour shifts 4 days/week and take Friday off, or work 9-hour shifts and take Friday off every 2 weeks. A third alternative being considered is a 4-day, 36-hour week, with employees giving up holiday time and benefits to make up the remaining 4 hours. "Oxnard Assails Smog Rules in Delaying 4-Day Workweek Plan" Los Angeles Times July 10, 1991, p. B-1.

b. Oxnard, CA -- About 350 union employees of the city of Oxnard have volunteered to work 10-hour shifts 4 days/week to help the city with county air-pollution rules. Some city officials have suggested offering cash incentives, lockers, showers, and child-care assistance for employees who ride-share or bicycle to work. Another scheduling change being considered would have city employees work in 9-hour shifts and take 1 day off every 2 weeks. "Ventura County News Roundup" Los Angeles Times July 18, 1991, p. B-3.

c. Thousand Oaks, CA -- Officials have approved a plan to close city hall on Fridays. One argument is that the people who are not working that day are not going to stay home. They will be going somewhere else instead. "County Issue/4-Day Workweek to Reduce Air Pollution" Los Angeles Times August 5, 1991, p. B-2.

9. **High Occupancy Vehicle Lanes**

a. Washington State -- The Washington State Legislature has passed a $2 billion transportation bill for 1991-93 that includes provisions for more High Occupancy Vehicle lanes and expanded ferry service. The bill also includes high capacity transportation planning, such as funds for studies on rail systems and improvements to existing Amtrak service. "Regional, State, Local Briefs" Urban Transport News July 11, 1991, p. 110. (Newsletter)

D. **Mass Transit**

1. **General**

a. Colorado -- The Colorado Senate passed a bill to create a new Denver Metropolitan Transportation Authority and preserve a 0.4 percent sales tax hike earmarked for mass transit. "Denver-Area Transportation Package Advances in Colorado Legislature" Urban Transport News" May 3, 1990. (Newsletter)

b. Los Angeles -- The number of bus passengers has increased from 1.6 million in 1987 to 2.8 million in 1991, 75%, mainly due to an aggressive marketing campaign that includes everything from occasional free ride promotions to TV ads. South Coast Area Transit (SCAT) has an agreement with local media organizations to exchange advertising space on buses for newspaper ads and radio and TV spots. SCAT is planning to offer discounts to entice employers to subsidize worker bus passes. For example, a 20-ride ticket will be available for $14, a savings of 1 dollar. A 30-ride ticket will be offered for $22.50, a savings of $2.50. The tickets can be used at any time. The county transportation commission is also

working on ways to make it easier for people to use the bus. The commission is expected to establish a toll-free bus information number in June. This would be one number where they could get all their bus service information. The Interconnect Bus Service, however, is lagging. Hoping to attract riders, the city plans to offer a $10 pass good for the entire summer. "Ridership Gains Show Buses Are Winning Respect" Los Angeles Times May 27, 1991, p. B-1.

c. Federal agencies can use public funds to participate in incentive programs that encourage Federal employees to use public transit. The bulletin opens the door for local transit agencies to target Federal agencies and their employees for mass transit incentive programs. Such incentive programs are commonly used for agencies in places like L.A., Phoenix, Philadelphia, and New York.

Last month the IRS raised the tax deduction for employers who subsidize their employees to use mass transit from $15 to $21. Although Federal employees are prohibited by law from receiving outright payment for their commuting costs, the bulletin says they can participate in existing subsidy programs. "Federal Agencies Can Participate in Mass Transit Incentive Programs" Urban Transport News August 8, 1991, p. 124.

d. A bill aimed at increasing the use of public transit by extending employee parking benefits to mass transit lots was introduced in Congress last week by Sen Bill Bradley (D-NJ). Under current tax laws, employers may deduct for parking they provide for employees when it is at or near the workplace, which encourages people to drive to work. Bradley's bill, S. 1244, would seek to modify the tax code by allowing employers to deduct the cost of employee parking in lots adjacent to public transit stations and car and van pooling areas.

Bradley also has supported a similar transit bill introduced this year to allow a tax deduction to employers who give transit passes to employees who use mass transit to commute to work. The bill would increase the maximum deduction from $15 to $60 a month per employee. "Senate Bill Would Give Tax Deduction For Using Mass Transit Parking Lots" Urban Transport News June 13, 1991, p. 92 (Newsletter).

2. Light Rail/Maglev

a. Baltimore, MD -- A new 22-mile light rail line is being built around Baltimore, expanding the city's 15-mile subway system. Baltimore and 2 surrounding counties will chip in $15 million. The system will be built on city streets and on freight right-of-way on the city's outskirts, and will cost about $15 million per mile. "Mass Movement" State Government News June 1991, p. 18.

b. Dallas, TX -- Has begun work on a $2.1 billion, 67-mile light rail system that will take 2 decades to complete. Also underway is an 18-mile commuter rail and 37 miles of carpool lanes. "Mass Movement" State Government News June 1991, p. 18.

c. Houston, TX -- is putting in a 24-mile monorail. "Mass Movement" State Government News June 1991, p. 18.

d. California -- is investing $6.5 billion in a 80-mile Los Angeles light rail system that, together with commuter rail, will link outlying cities such as Santa Monica, Santa Ana, and San Bernadino. "Mass Movement" State Government News June 1991, p. 18.

e. Florida and Los Angles/Las Vegas -- Construction will begin in 18 months on a 13-1/2 mile German magnetic levitation system in the Orlando-International Drive Corridor (~ 1 mile from Disney World). The train will move at 250 mph and deliver passengers from Orlando to International Drive in 6 minutes. Another maglev system is being considered in the 265-mile Los Angeles to Las Vegas corridor, but adequate financing has not yet been found. Reauthorization of the Federal transportation bill provides a window of opportunity to get the U. S. back in the maglev technology race (Germany and Japan have moved ahead in commercial applications). A proposal before Congress would provide $1 billion over 5 years to design a maglev system and develop national standards. A competition would be held to produce a winning design, which would be used in a 35- to 40-mile demonstration project. Such competitions should help produce technology more affordable than today's, which cost $24 million/mile. "Life in the Fast Lane" State Government News June 1991, p. 22.

Orlando, FL -- Maglev (magnetic levitation) systems are high speed trains that use superconducting magnets to "fly" on a cushion of electromagnetism at speeds of more than 300 mph. Maglev trains have the potential to move passengers and freight in high density transportation corridors quickly and quietly, but at a rather great

expense. And, maglev systems may pose new environmental and safety questions. A proposed maglev project is a 13-mile line linking Orlando International Airport and the Disney World Epcot Center. "Maglev Attracting Attention" ITS Review, pp. 2-3. May 1991.

f. Houston, TX --The Houston Metropolitan Transit Authority (METRO) decided last week to build the nation's first monorail system. The $1.2 billion system will extend from downtown Houston to 21 stations located in population and business centers around the Houston area. The next step is for METRO general manager Bob MacLennan to negotiate a contract with Transportation Group Inc. of Orlando, FL to design the first 14 miles of the 22-mile rail system.
Another obstacle to the project will come later this month when METRO officials lobby for Federal funding in Washington, DC. The March 28 decision by the METRO board was needed before the Urban Mass Transportation Administration (UMTA) would listen to any requests for Federal aid. About 60% of the funding is expected to come from the Federal government.

Design of the system is expected to take about a year. Construction is not expected to begin until the end of 1992, with the first leg in operation in 1996. "Houston Chooses $1.2 Billion Monorail for First of its Kind Transit System" Urban Transport News April 4, 1991 (Newsletter)

3. **Metro**

a. Atlanta, GA -- Encouraged by the success of a free parking experiment last December, the Metropolitan Atlanta Rapid Transit Authority (MARTA) plans to offer riders another month of free parking this month. Results of the December experiment show that an average of 6,900 vehicles per day -- 1,300 more than expected -- were lured by the offer of free parking at MARTA rail stations. The additional commuters translated to 1,500 more paying passengers in December. The experiment proved that people used the mass transit system more often because of the free parking. MARTA expected to lose $53,000 in parking revenue because of the free parking. The results showed that the loss of parking revenue was offset by the increase in fares from passengers. For more info call Mak Gebre-Hewit at (404) 848-5117. "Marketing Moves: Free Parking Brings New Riders in Atlanta" Urban Transport News May 2, 1991, p. 72. (Newsletter)

4. Buses

a. New York/New Jersey -- In December 1990, the exclusive counterflow bus lane on New Jersey Route 495 leading to the Lincoln Tunnel and Manhattan celebrated its 20th year of operation. During its 20 years of operation, the bus lane has provided quick, reliable access to Manhattan for more than 6 million buses and nearly 244 million passengers.

The exclusive bus lane (XBL) was the first counterflow bus lane on a freeway in the U.S. The far left lane of the westbound travel lanes of Route 495 is converted to the XBL during the morning peak period. Its success has led to the implementation of several similar operations in the NY-NJ metropolitan region (on the approach to the Queens Midtown Tunnel and the Brooklyn Battery Tunnel) and in other States.

The XBL was implemented by the Port Authority of NY and NJ, in cooperation with the New Jersey Department of Transportation (NJDOT) and the New Jersey Turnpike Authority (NJTPKA). As a counterflow lane in the busiest freeway bus travel corridor in the world and within a complex multijurisdictional situation, the XBL required intensive political, administrative, and technical efforts.

Initial funding was provided by the U. S. Department of Transportation. "Route 495 Exclusive Bus Lane: A 20-Year Success Story" ITE Journal April 1991, pp. 26-29.

b. Montreal, Canada -- Montreal's R-bus service has boosted bus ridership in the area by 35% since it started last June. The R-Buses (R for reserved lane) run in a special lane against the flow of traffic. A flashing yellow arrow on the front of the buses warns any motorists who cross into the lane to move aside. An average commuter who uses the R-bus for its entire route can save 15 minutes of driving time per day. No additional fare is charged for R-bus rides. Transfers from intersecting buses and the subways are free. "Regional, State, Local Briefs" Urban Transport News April 4, 1991, p. 54.

c. Phoenix, AZ -- The Phoenix Transit System has introduced the nation's first transit credit card. Called the "Bus Card Plus," it allows bus patrons to be billed for transit use directly through payroll deductions.

Bus Card Plus cards are issued to employees of major employers, who are required by a 1988 State law to reduce single-occupant

vehicle trips by employees by 5%. Each time an employee boards a bus, he can slide the card through a magnetic card reader installed on the farebox. The employer's identification number, encoded on the plastic card, will be automatically entered into a computer, enabling the transit system to provide employers with a monthly invoice for fares and reports of ridership statistics.

In addition to travel reduction figures, companies that offer transit subsidies to their employees will receive cost saving benefits. Under the current pass program, a company could provide an employee with a monthly local service pass for no more than $27. It can be used for an unlimited number of rides.

Valley National Bank of Arizona plans to be the first employer to use the new card system beginning on April 1. It is issuing 950 cards to employees throughout metropolitan Phoenix. For more info call Scott Hanson at (602) 954-8518. "Marketing Moves: Transit Credit Card Debuts in Phoenix" Urban Transport News March 21, 1991, p. 48.

d. Phoenix, AZ -- The City of Phoenix is distributing Bus Card Plus cards to 2,000 municipal employees, joining Valley National Bank of Arizona as the only companies offering this transit convenience to its work force. Each time an employee boards a bus, he slides the Bus Card Plus card through a magnetic card reader installed on the farebox. The employer's i.d. number, encoded on the card's magnetic strip, is automatically entered into a computer. The transit system then sends the employer a monthly invoice for fares and reports ridership statistics. Employers are billed only for trips actually taken by employees, rather than for monthly passes. The advantage is cost savings along with credit for travel reduction. For more info, call the Phoenix Transit System Business Outreach Office at (602) 261-8505. "Phoenix Boosts Transit Credit Card" Urban Transport News July 11, 1991, p. 112.

e. Madison, WI -- The Madison, WI, Metro Bus system began its new Free Fare Zone Service recently, allowing passengers in the downtown area to ride buses free. The Free Fare Zone includes downtown Madison and most of the University of Wisconsin-Madison. From 10 a.m. to 3 p.m., Monday through Saturday, passengers can board a Metro bus at any of 48 stops designated with a special free fare logo and travel within the zone free. Passengers most likely to benefit are downtown employees on lunchtime schedules. Passengers who begin or end their trips outside the Free Fare Zone will pay the regular fare. Metro monitors make random checks for proof of payment. Before the bus enters the Free Fare

Zone, monitors present transfers to those passengers who do not have a valid Metro transfer or pass. The transfers act as proof of payment. When the bus leaves the Free Fare Zone, monitors ask passengers to show their proof of payment. Fare evaders are warned the first time and then fined $50, $100, and $200 for subsequent offenses. "Marketing Moves: Madison Offers Free Fare Bus Zone" Urban Transport News April 4, 1991, p. 56. (Newsletter)

f. Atlanta, GA -- The Metropolitan Atlanta Rapid Transit Authority (MARTA) has worked with the local business community to develop coupon books good for discounts at area entertainment spots, restaurants, and shops. The coupon books are given away to passengers who purchase weekly or monthly bus passes. "MARTA Offers Coupons with Bus Passes" Urban Transport News August 22, 1991, p. 113. (Newsletter)

g. Detroit, MI -- Passengers buying monthly parking permits at specially designated lots can also buy a People Mover monthly pass for $10 -- a 50% savings off the normal $20 price. More than 30 parking lots located near People Mover bus and commuter train stations were chosen to participate in the program. Only monthly parkers can buy the 1/2 price passes. "Marketing Moves: Detroit's Parking and Mass Transit Come in One Deal" Urban Transport News January 24, 1991, p. 16. (Newsletter)

h. Columbus, Ohio -- The Central Ohio Transit Authority (COTA) developed a program last fall that turns bus passes into a fringe benefit for Columbus area employees. Under one part of the program, COTA gives a roll of passes to employers who then sell them to employees. About once per month, a COTA representative goes to the companies and collects the money earned from sales of the passes.

A second part of the program allows employees to automatically deduct the cost of monthly bus passes from their paychecks. The passes are then included with the paychecks. Some employees pay for at least part of the pass's cost. Monthly bus passes sold out for the first time in January and February. "Marketing Moves: Employers Use Bus Passes as Fringe Benefit in Columbus" Urban Transport News March 7, 1991, p. 40. (Newsletter)

5. **Van Pools**

a. Chicago, Illinois -- Chicago's Pace transit agency has approved a 3-yr, $1.6 million contract with United States Fleet Leasing Inc. for a van pool for local commuters which could begin service in September. Pace operated buses throughout the Chicago area. In the van pool, people who work at the same job site or live near one another can commute together with one person designated as the driver. Pace will lease the vans, but drivers will ride free and have limited personal use of the vehicles. Pace officials plan to start the van pool on a small scale of about 10 vans and grow if demand is sufficient. "Regional, State, Local Briefs" Urban Transport News August 22, 1991, p. 134. (Newsletter)

E. **Restrictions on Road Construction**

a. San Francisco, CA -- Last month, in a suit brought by the Sierra Club and Citizens for a Better Environment, U.S. District Judge barred the Metropolitan Transportation Commission from approving freeway expansions until it can demonstrate that air quality will not suffer. "A Push to Cut Traffic 35% in 7 Years" San Francisco Chronicle January 16, 1991, p. A1.

b. Long Island, NY -- Officials would have to set and meet annual targets for the number of car trips taken in the region. No road expansion could go forward without proof that it wouldn't upset the plan. Adding a lane to a road couldn't be done without showing that vehicle trips elsewhere would drop. Only safety projects are exempted. But the regulations would provide a boost for the State's plan to restrict a new lane of the Long Island Expressway to car pools only. "Car Pools Ahead New Clean Air Act Provides for 'Gun-to-Head' Plans to Reduce Air Pollution. Newsday March 25, 1991, p. O5.

c. California -- The Air District is considering seeking to control future highway construction on the grounds that roads, like shopping centers, are indirect sources of pollution that should be subject to stricter regulations "Employee Parking Fee Shelved" San Jose Mercury News February 28, 1991, p. 1-C.

d. Santa Clarita, CA -- To reduce traffic, options include reducing truck traffic during the peak hours, synchronizing traffic signals to minimize the time of idling motors, and expanding and encouraging the use of the city's bus system. "City Will Receive $90,000 to Improve Quality of Air" Daily News of Los Angeles June 17, 1991, p. SAC2.

II. Fireplace Control Measures

a. Utah -- Sales tax exemption for conversion of fireplaces to natural gas or propane. "Alternative Fuels: Politics Threatens New York Program for Must-Buy Clean Fueled Vehicles" Energy Report, January 14, 1991 (Newsletter).

b. Colorado -- In Telluride, CO, the legislation was created to regulate solid-fuel-burning devices. This means any kind of fireplace or wood-burning stove. Every 'device' must have a permit and be up to certain tight standards -- or it cannot be used. Under the town rules, any homeowner who wants to burn wood must find two people wiling to sell their permits, thus reducing the total number of potential polluters allowed. The cost of single permits has soared to between $1,200 and $1,400, so just the privilege of fire can run up to $2,500. No building can have more than one such stove or fireplace, so the warm-fire apres-ski atmosphere takes some looking for here. "As California is Limiting the Barbecue, so Colorado Changes the Fireplace Pollution" Los Angeles Times February 3, 1991, p. M-5.

c. San Francisco, CA -- The Bay Area AQMD will ask the public to voluntarily curtail burning wood when winter surface-based temperature inversions occur. "San Francisco Request to Curtail Burning of Wood" San Francisco Chronicle February 22, 1991, p. B6.

d. Oregon -- The State is continuing current standards that ban wood fires when air quality deteriorates. A $30 fee will be added to all new stoves and a $3 fee will be added to every firewood cutting permit, with the money going to the air pollution fund for research. "Pollution Broom Adds Fireplaces to Sweeping Clean Air List" Oregonian March 25, 1991, p. BO2.

e. Oregon -- Klamath County commissioners adopted an ordinance barring most wood stoves from burning on days when the air pollution is bad. In the Eugene-Springfield area, wood stove polluters will face fines beginning in November.

Eugene, Springfield, urban Lane County, Medford, and Jackson County started mandatory wood stove smoke programs last year. Grants Pass has a voluntary one, and La Grande will begin a voluntary effort this winter.

The new "pay-to-pollute" legislation will prohibit sales of uncertified used wood stoves after Nov. 15 and will give the DEQ an extra enforcement tactic for nonattainment areas by requiring the removal

of uncertified stoves from houses that change hands, beginning in 1994.

The new legislation also set a $3-per-cord emission fee on cordwood, effective July 1, 1992, and created a grant and loan program to help citizens replace their older, polluting stoves with certified, clean-burning stoves.

In Klamath County, a special effort to educate the public that controls wouldn't completely outlaw wood heat, and grants helping poor people weatherize and convert to other heat sources helped bring public acceptance of the measure.

The county hired an air quality specialist, who secured grants to help install insulation and replace wood stoves in 200 of the 600 houses that had no other heat.

On so-called red days, when an air inversion locks pollutants in the valley, only pellet stoves and stoves that serve as the sole source of heat in a household can burn. Those with other sources of heat must use them. On yellow days, when conditions are marginal, state-certified stoves also can burn. On green days, any stove can burn. Violators will face fines ranging from $50 to $500. The new ordinance will be enforced by patrols looking for chimney and stovepipe smoke.

People who rely on wood stoves as their sole source of heat and those with incomes that are 125% of the poverty level or less can apply for exemptions from the program. "Governments Fight Wood Stove Pollution" Oregonian August 6, 1991, p. BO4.

f. Reno, Nevada -- Health Department Officials ban wood-burning except for heating purposes on many winter days, require old stoves to be removed or improved when homes are sold, and prohibit fireplaces or wood-burning stoves in most new homes. "Smog May Mean Curbs on Burning" San Jose Mercury News February 22, 1991, p. 1-B.

III. Green Tax/Carbon Tax/Emission Fees

a. European Community -- Carbon taxes are market mechanisms intended to force users to operate more efficiently, cleanly. No agreement yet. "No EC Agreement on Green Taxes" Business and the Environment October 18, 1990 (Newsletter)

b. Mexico City -- All fossil fuels will have a 12.5% tax which will fund part of a drastic program to curb air pollution. "Tech Brief: Mexico City Plans to Deal with Smog" Environmental Business Journal December 1990 (Newsletter)

c. Congress' Office of Technology Assessment identifies a tax on carbon as one of the most promising. Carbon taxes are charges on fossil fuels set according to their carbon content. Under such a scheme, coal would bear a larger tax than oil, whose tax would, in turn, be greater than that on natural gas.

Like a general energy tax, a carbon tax would encourage all consumers, whether individuals, businesses, or government, to use less fossil fuel. An additional benefit from carbon charges is that they would also promote fuel switching. Over the long term, carbon charges would provide an incentive for development of alternative renewable sources of energy. Chemical and Engineering News April 1, 1991 "Economic Considerations Enter Fray Over Global Climate Change Policies," p. 7.

d. The Union of Concerned Scientists (UCS) conservation proposal contains several tax components. According to the UCS: the 10% tax credit for solar and geothermal power should be raised to 15% and broadened to include all renewable resources; tax credits should be granted for residential solar installations; gasoline taxes should be substantially increased, with the additional revenue going to mass transit and energy conservation; and inefficient appliances should be subject to an excise tax, with the revenue funding rebates on high-efficiency appliances.

Also: the miles per gallon floor on the gas-guzzler tax should be increased and the tax extended to light trucks and vans; the employer's tax deduction for employee parking expenses should be eliminated, with resulting revenues funding mass transit stipends for employees; a federal tax credit of 2 cents per kw-hr of electric power production from renewable resources should be created, to be phased out over 8 years; and the Internal Revenue Service should be directed not to treat as income utility company rebates to consumers for investments in increased energy efficiency. "National Energy Strategy" Hoerner, J. Andrew, Tax Notes February 25, 1991, p. 818.

e. The European Community -- Carlo Ripa Di Meana, environmental commissioner in the Commission of the European Community, supports a tax on carbon-dioxide-generating fuels. He has placed

his tax proposal for such fuels on the commission's agenda for next week.

The tax basically would add the equivalent of $10 to the cost of a barrel of oil consumed. The immediate charge would hit electricity generators who, in turn, would pass on the cost to their industrial customers. No cost increases are supposed to be passed on to consumers, however. Fuels that generate less or no CO_2 would gain a competitive price advantage, encouraging a move away from coal and oil to cleaner burning natural gas, to nuclear power, and to other energy sources. "European Community to Consider CO_2 Tax" Chemical and Engineering News September 16, 1991, pp. 5-6.

f. The Worldwatch Institute suggests 8 possible environmental taxes, including a $100/ton tax on the carbon content of fossil fuels, a $100/ton tax on hazardous wastes, a 50% tax on pesticides, and a $64/ton tax on paper and paperboard produced from virgin wood pulp. The report recommends phasing in the taxes over a 5- to 10-year period to ease economic effects.

Worldwatch President Lester Brown stressed that green taxes should be used to shift the tax burden from the personal income tax. For tax payers with low incomes, a credit similar to the earned-income credit could be used to ensure progressivity. "Green Taxes Integral to Future, Worldwatch Institute Contends" Tax Notes, February 25, 1991, p. 819.

g. New York, Massachusetts, and California -- States are beginning to avoid adding energy resources that release high levels of pollutants. New York was the first to assign a cost to CO_2 emissions in its guidelines for evaluating utilities' resource options. Massachusetts followed in August 1990 with a $22/ton assessment, which is roughly a 20-fold increase over the New York value. California regulators are considering staff proposals to raise this figure further to assign a $26/ton value to CO_2 releases. "Statehouse Effect Combats Greenhouse Effect" Cavanagh, Ralph C. and Arthur H. Rosenfeld. The Journal of State Government. Vol. 63. p. 98.

h. Sweden -- Swedish officials have drafted proposals that would tax sulfur, NO_x, and CO_2 emissions. If the proposed plan is approved, by the end of the decade it would reduce SO_2 emissions by 7% from their 1987 level, NO_x by 8%, and CO_2 from 9 to 17%. "Communication: A Global Agenda for Clean Air" Energy Policy July/August 1990, p. 584.

i. Idea for a new kind of tax (or fee) used to signal ecological impacts and consequences, and thus seriously influence the behavior of producers and consumers. This new Restoration Tax would tax activities according to the rough amount of ecological damage they cause, and divert the funds thus raised back into restoring or diminishing that damage. For example, the Restoration Tax on paper products would support reforestation efforts, development of sustained-yield forestry, and development of a universal paper-recycling industry. Restoration Tax money from cars would go toward developing alternative energy sources, redesigning cities so that less motorized transportation of any kind is needed, and providing noninternal-combustion-engine modes of transit. Because of the vast variety of products in our society, these taxes could not practically be levied at the point of sale; they would have to be levied, like the value-added taxes familiar in most countries, at the point of manufacture, but they should be publicized (like cigarette health-warnings are) on the goods themselves. "The Restoration Tax" Whole Earth Review Winter 1990, pp. 118-119.

j. Germany -- The Social Democratic Party is proposing an Ecotax that will especially impact petroleum products; its proceeds, however, will be used for social and not ecological purposes. The German Green Party is backing an even more relevant Ecotax on primary energy (nuclear, oil, coal, and natural gas) whose proceeds would be used to extend public transportation and finance conversion to sustainable energy sources; they also favor heavy taxes on environmentally damaging packaging, atmospheric emissions, and so forth, to finance an ecological damage fund. "The Restoration Tax" Whole Earth Review Winter 1990, pp. 120.

k. Sweden -- The official report of a Swedish 4-man Expert Committee recommends that a "pollution charge" be linked to the emission of Sulfur, NO_x, and CO_2. The charge should be concurrent with financial support to environmentally-sound technologies. The Committee recommends that Sweden lead the way and become the first country in the world to charge industry for the emission of CO_2. The Committee also recommends special charges on the use of fuel oil, coal, petrol, natural gas, and propane. At the same time, it is suggested that financial support be given to motor vehicles that reduce emissions of exhaust fuels to levels below the minimum level required, and to electricity produced using renewable energy resources such as wind and biomass. "Sweden Proposes Charges on Emission of Pollutants to Finance Environmentally Sound Technology" Ambio Vol. 18, No. 8, 1989, p. 462.

IV. Consumer Products Control

a. Los Angeles, CA -- The California Air Resources Board is contemplating an "innovative products" clause in its consumer products regulation to allow manufacturers to keep their current mix of ingredients if they could reduce the frequency of use or otherwise guarantee that fewer pollutants were escaping into the atmosphere. "California Plan Aims at Household Goods to Cut Air Pollution" Los Angeles Times June 7, 1991, p. A3.

b. Los Angeles, CA -- Perfume, dishwashing liquid and laundry detergents, starches, shoe polish, insecticide, and car wax are types of consumer products that are among targets for reformulating to lower VOC emitting contents. Automotive brake cleaners, car leather and vinyl cleaners, fabric protectants, waterproofing products, household glues and cements, sealants and caulkers, might all have trouble staying on the market if mandated to switch to lesser polluting formulas. "Perfumes, Detergents Put on Smog-Fight List" San Jose Mercury News June 7, 1991, p. 4-B.

V. Grants/Awards for Innovation Assistance

a. Maryland -- Approval of $360,000 in State grants to assist local jurisdictions implement air pollution control programs, funded from permit fees and civil penalties "Maryland" Environment Week February 8, 1990 (Newsletter)

b. Santa Ana, CA -- Ultrox International of Santa Ana, CA has won a $300,000 Army Corps of Engineers contract to develop a technology for combating industrial air pollution. Awarded under the Small Business Innovation Research Program, the company will build a full-scale field model of its "air stripper" which is used to destroy air-borne solvents. "Second SBIR for ULTROX" New Technology Week April 30, 1990 (Newsletter)

VI. Green Labeling

a. A coalition of trade associations representing some 1,000 major corporations has petitioned the Federal Trade Commission for Guidance on Green Labeling "The Big Muddle in Green Marketing" Fortune, June 3, 1991, p. 92.

b. California -- A bill in the California legislature would outlaw the word "recyclable" on all labels unless consumers have easy access to a recycling facility. "The Big Muddle in Green Marketing" Fortune, June 3, 1991, p. 92.

c. Germany -- Among the first National environmental product labeling programs, Germany's Blue Angel award has been operating for 12 years. More than 3,000 products in nearly 60 different categories have been given the Blue Angel seal -- modeled after the United Nations Environment Program logo. An informational label accompanying the seal describes the particular benefits of each product.

An independent "environment label jury" consisting of representatives from industry, unions, consumer organizations, and scientists makes the final determinations, and the Ministry of Environmental Affairs publishes them. Manufacturers can then apply to have their products awarded the seal. Following a government investigation by multiple agencies, the eco-label is awarded for a 3-year period. Renewals require a new investigation.

The majority of the public is aware that the federal seal is predicated on strict criteria, but they also think that ecological terms used in advertising are regulated.

One major complaint focuses on the fact that the program applies to a product's achievement in only one area. A comprehensive classification system should include the product's use of natural resources, the environmental consequences of its productions and distribution, and problems associated with its disposal. Helm, Wolfgang. "In Germany, Green Products are Colored Blue" The Environmental Forum Nov/Dec 1990, p. 31.

d. Canada -- Launched its Environmental Friendly Products program in 1987, organized and administered by Environment Canada. Unlike the German program, it evaluates the entire life cycle of a product for its environmental impact. Helm, Wolfgang. "In Germany, Green Products are Colored Blue" The Environmental Forum Nov/Dec 1990, p. 32.

e. Canada -- Canada's Environmental Choice program started up in March 1989 and has already certified products from 33 companies. "Green Labels Aim to Aid Eco-Conscious Shoppers" Utne Reader March/April 1991, p. 38.

f. Green Cross, based in Oakland, CA, has certified 50 supermarket items, including paper towels, toilet tissue, plastic trash bags, and campfire logs. Green Cross doesn't establish standards so much as it takes companies to task for the claims in their marketing. However, certification criteria are limited to recyclability and biodegradability: A product can legitimately adorn its package with

the Green Cross and still use plenty of toxic chemicals in manufacturing. "Green Labels Aim to Aid Eco-Conscious Shoppers" Utne Reader March/April 1991, p. 38.

g. Green Seal is a more comprehensive environmental-labeling effort. A product's environmental impact will be examined from "cradle to grave" -- from the resources (including energy consumed in its production) to the fuel that is burned in its transportation to the toxic and radioactive waste created before, during, and after its use. Green Seal had not yet certified any products at the time of this writing. "Green Labels Aim to Aid Eco-Conscious Shoppers" Utne Reader March/April 1991, p. 40.

h. Companies in other countries are already developing green products under the impetus of foreign labeling programs in Australia, Canada, Czechoslovakia, Germany, Japan, and the Nordic countries. Dean, Norman L. "An Educated Consumer is the Best Consumer" The Environmental Forum Nov/Dec 1990, p. 30.

i. A 10-state environmental marketing task force was formed to combat "green scams" by prosecuting firms that make misleading, deceptive, and false environmental claims for their products. The group, formed in late 1989, includes the attorney generals of California, Florida, Massachusetts, Minnesota, Missouri, New York, Texas, Utah, Washington, and Wisconsin.

   The task force has issued these recommendations for responsible environmental marketing: claims should be specific, not general, vague, incomplete, or overly broad; claims of "degradability" and "recyclability" should not be made unless the disposal options which will back up those claims are available to consumers in the area where the product is sold; claims should be substantive; claims should be supported by reliable scientific evidence.

   Along with the guidelines, environmental "seal of approval" programs are being considered that would be modeled on programs underway in Germany, Canada, Japan, and Norway. Under the seal of approval system, products judged to have lower environmental impacts, such as low pollution, water-based paint and reusable cloth diapers, are given seals of approval. Klein, Karen E. "How Green is Your Product?" Student Lawyer May 1991 pp. 45-47.

j. Some States, including California and New York, have recently passed legislation that regulates the use of environmental terms like "recyclable," "degradable," "recycled," "ozone friendly," and

"environmentally friendly." Klein, Karen E. "How Green is Your Product?" Student Lawyer May 1991, pp. 46.

k. To minimize consumer confusion and prevent abuse of environmental claims, 2 steps are required: First, State and Federal officials must pursue legal actions to stop the most blatantly misleading environmental claims. Second, the marketplace needs a set of clear standards. We need national standards applicable to all environmental claims so consumers are able to learn what terms like "recycled" or "degradable" really mean. Humphrey III, Hubert H. "Making Sure Green Claims Aren't Gray" The Environmental Forum Nov/Dec 1990, p. 33.

l. To help educate consumers, Green Seal plans to identify and place a label of a blue globe and green check mark on products that are significantly less damaging to the environment.

Green Seal is establishing standards based on how much pollution is generated when the products are manufactured, how they are shipped, whether they contain toxic materials or are dangerous when used, if they harm fish and wildlife, how durable they are, whether they exacerbate the nation's solid waste problems, and whether they can easily be repaired, reused, or recycled. Green Seal is also looking to see if products are reasonably packaged.

Green Seal is establishing environmental standards for light bulbs, laundry cleaners, house paints, tissue and toilet paper products, re-refined motor oil, water saving devices, and energy saving appliances, with more to come.

Once standards have been set, manufacturers will be free to submit their products for testing and evaluation. Those that pass can use the Green Seal label. The concept behind such an environmental labeling program is simple: encourage consumers to buy environmentally better products and thereby provide manufacturers with a strong economic incentive to design and manufacture more of them.

Environmental labeling programs are already underway in Canada, Germany, Japan, Australia, New Zealand, and Norway. The European Community this year announced it would launch a program. "Claims Worth Trusting" State Government News April 1991, p. 13.

VII. Charges for Waste Disposal

a. Perkasie, Pennsylvania -- People have to buy specially marked garbage bags from the city: $1 for a 20-pound bag or $1.75 for a 40-pounder (up from 85 cents and $1.50, respectively, last year). The charge cut the tonnage of residential waste nearly in half in 1988, the first year of the program. "The Big Muddle in Green Marketing" Fortune, June 3, 1991, p. 93.

b. High Bridge, New Jersey -- Residents of High Bridge, New Jersey, pay $200/year for stickers good for 52 bags of garbage. The cost of a sticker for each additional bag thereafter: $1.65. In 10 months, the town cut its waste by 24%. "The Big Muddle in Green Marketing" Fortune, June 3, 1991, p. 93.

c. Charlotte, NC -- Recycled newsprint: Requires newspapers to gradually increase the content of recycled paper in their newsprint from 12% in 1991 to 40% by 1997. Newspapers that don't meet the required percentage must pay a tax of $15 a ton every 3 months on the amount that falls short unless recycled newsprint isn't available. "Rundown of Bills that Passed and Failed" Charlotte Observer July 21, 1991, p. 6-B.

VIII. Increased Permit Fees/Inspection Fees (Facilities)

a. Missouri -- Bill in Missouri State Senate establishes fees and penalties and mandates that anyone emitting certain amounts of air toxics must register with the State government and submit a plan for reduction. These amounts would be more stringent over time -- anyone emitting more than 100 tons of HAP's in 1991, 50 tons in 1993 and 10 tons in 1994. "Tough Missouri Air Toxics Bill May Die Because of Power Struggle Toxic Materials News February 21, 1990 (Newsletter)

b. Nevada -- The Washoe Board of Health approved new rules to limit toxic air pollution from the industrial areas in Reno and Sparks. New facilities releasing air toxics now must apply for permits requiring them to meet Federal standards, and pay fees based upon their releases. Industries will be charged $3 for every pound of toxic emissions released in an average day. "State Briefs: Nevada" State Regulation Report July 25, 1990 (Newsletter)

c. Arizona -- The House voted 33-20 to strengthen enforcement of the State's air pollution laws by increasing fines against polluters and raising air quality permit fees. House Bill 2490. To Senate.

"Legislature in Brief" Arizona Republic March 27, 1991. (Newsletter)

d. Connecticut -- The Environment Committee approved a package of user-fee increases designed to raise about $4 million for an environmental protection and conservation fund. "Around the States -- Connecticut" Air Pollution Report April 2, 1991. (Newsletter)

e. Charlotte, NC -- Bills that passed: air pollution fines: double the maximum fine for violating air standards from $5,000 to $10,000 per day. "Rundown of Bills that Passed and Failed" Charlotte Observer July 21, 1991, p. 6-B.

IX. Requirements for New Residential/Commercial Development

a. Ventura County, CA -- The draft Air Quality Management Plan proposes an "indirect-source regulation" which seeks to hold developers responsible for the pollution caused by new housing or commercial projects. The measure would require developers to discourage the use of cars by limiting parking in their complexes and to pay fees for mass transit. "Air Pollution Plan Criticized as Too Tough" Los Angeles Times April 10, 1991 p. 1-B.

b. Long Island, NY -- Planners predict a new push for restrictions on density of development to hold down traffic, and requirements that new office buildings provide van transportation for their tenants. "Car Pools Ahead New Clean Air Act Provides For 'Gun-to-Head' Plans to Reduce Air Pollution" Newsday March 25, 1991, p. O5.

c. Vermont and Florida -- have enacted land use plans that encourage energy efficiency. Such plans, for example, can require that housing be built closer to work sites so that commuter travel is reduced. In Florida, local governments failing to adopt a plan that complies with State requirements stand to lose State funds. "Good Policy, Bad Times" Totten, Michael and Jeffrey Tyrens. State Government News January 1991, p. 30.

d. Los Angeles, CA -- The AQMD agreed to proceed with a requirement for local governments to enact air quality programs that would shorten commutes. For instance, a city could require new housing to be near jobs and vice versa, or encourage development near mass transit stations. "AQMD Approves Changes to Region's Clean Air Plan" Los Angeles Times July 13, 1991, p. A-1.

X. Public Education

a. Boulder, CO -- Grocery shoppers are being reminded that if they don't buy it, they don't have to throw it away. The prerecycling education program aims to encourage shoppers to buy products packaged in readily recyclable materials such as glass and to buy staples such as flour in large quantities. "Wood-burning Ban Again in Effect Today, Season's 17th Bad-Air Alert" Rocky Mountain News, January 3, 1991, p. 19.

b. Clearwater, FL -- Directed at students in Pinella and Hillsborough County schools, the PSTA/HARTline Education Outreach Program is centered around a 15-minute video entitled "Your Ticket to the Future." The program is designed to increase students' use of public transit by making it more acceptable. For more info, call Roger Sweeney at (813) 530-9921. "Florida Educates Students in Hopes of Picking Up Riders" Urban Transport News August 8, 1991, p. 128.

XI. Emissions Trading/Offsets

a. Los Angeles, CA -- ARCO Products Co. argues that it should receive credit for reducing pollution by selling cleaner-burning fuel. ARCO officials said that if they receive credits for emission reductions, they would use some of them to add processing units to produce more clean gasoline. ARCO wants credit for 534 tons/year of hydrocarbons and more than 11,000 tons/year of CO based on sales of its Emission Control Premium gasoline. "ARCO Seeks Pollution Tradeoff" Los Angeles Times May 22, 1991, p. 3A.

b. Los Angeles, CA -- The Southern California Air Quality Management District may establish a regional exchange in credits for nitrogen oxides and hydrocarbon emissions. That market, expected to be formally proposed by the end of 1991, would allow trades only within the 4-county basin regulated by the AQMD. "Pollution-Credit Trading May Mushroom" Los Angeles Times July 19, 1991, p. D-1.

c. Camarillo, CA (Ventura Co.) -- 3M Corp. has agreed to sell 78 toms of "banked" pollution credits to Proctor and Gamble Co.'s Oxnard plant. The agreement would allow P&G to emit up to 50 additional tons/year of pollutants into the air, with plans to double output of Charmin and Bounty paper products.

The pollutant trade-off is based on a formula that requires some of 3M's credits to be retired permanently. Thus, P&G will pay for 78 tons of the 104 tons in the 3M account but will receive only 50 tons

in emission credits. "3M Agrees to Sell Air-Pollution Credits" Los Angeles Times July 23, 1991, p. 1-B.

d. More flexible market policies such as emissions trading can produce reductions in several pollutants simultaneously. Opportunities to grant regulatory credit for multiple simultaneous emissions reductions must be created if we expect such strategic private investments to occur. One example for CO_2 is the recently introduced Cooper-Synar Bill (H.R. 5966). This bill would create an offset requirement for all new CO_2 sources generating more than 100,000 tons per year. At the same time, it would establish regulatory mechanisms for CO_2 offsets to be created by utilities as a by-product of their acid rain control strategy, by such manufacturers that exceed the Corporate Average Fuel Economy (CAFE) requirement, by planting trees, and by improving energy efficiency "Markets for Environmental Resources." Environmental Science and Technology February 1991, p. 213.

e. Chicago, IL (National) -- The Chicago Board of Trade (CBOT) has drafted a contract, subject to approval by the Commodities Futures Trading Commission (CFTC), which would establish futures and cash markets for SO_2 emission allowances under the Emission Allowance Trading Provisions of the CAA amendments of 1990. Trading would commence by Jan. 1, 1993, in conjunction with compliance deadlines.

The EPA would administer the CAA provisions by issuing allowances to facilities emitting SO_2. The CBOT would provide the facility for trading these allowances.

Futures allowances would be traded at the CBOT in an open market, allowing utilities to buy allowances or sell excess allowances at a profit. The key is to reduce emissions, while keeping costs at a minimum. For some facilities, that will mean deferring capital equipment purchases and playing the game of supply and demand.

CBOT proposes to: 1) Establish and administer allowance transfer programs via an annual auction and a direct sale; 2) Establish and operate active cash markets allowing market participants to acquire and dispose of allowances; 3) Establish and operate active futures markets to provide accurate pricing signals so that informed decisions can be made regarding emission control. 4) Establish information systems to provide data necessary to evaluate the allowance program at the least cost.

The contract will be traded in units of 25 one-ton SO_2 emission allowances. Minimum price fluctuations will be in multiples of $1 per allowance.

In Phase I of the project, 110 co-fired electric power plants will be allotted a set number of permits, each allowing the holder to emit one ton of SO_2 in a year. The number of initial allowances granted will be far less than the amount of SO_2 currently emitted by these plants.

Coal-fired power plants which commenced operations after November 15, 1990, will not be given allowances and can continue to operate only if they can buy allowances on the open market, at annual auctions, or directly from EPA.

Phase II, which begins in the year 2000, will impose emission limits on less pollution intensive and smaller plants.

A $2,000/ton penalty will be imposed on plants that exceed their held allowances. "Chicago Board of Trade to Tackle Emissions Trading" Pollution Engineering September 1991, pp. 45-46.

XII. Adverse Publicity

a. Each month, the Los Angeles Times publishes a list of the 10 top environmental penalties. For example. one company, the Vons Companies Inc., Huntington Park (supermarket chain) was penalized $20,000. The violation was failure to submit an AQMD-approved ride-sharing plan. Money to be spent on employee ride-sharing incentives over the next 4 years. "Top Air Pollution Penalties" Los Angeles Times July 10, 1991, p. B-2.

b. Company: SuperShuttle in Los Angeles (airport ground transportation system) fined $75,000. Violation: Failure to submit an AQMD ride-sharing plan, the firm agreed to retrofit 25 vans to run on clean-burning propane fuel at a cost of $75,000. "Top 1990 Air Pollution Penalties" Los Angeles Times June 14, 1991, p. 2-B.

c. Company: Union Bank Panorama City. Penalty: $23,000. Violation: Failure to submit an AQMD-approved ride-sharing plan. Money to be spent on employee ride-sharing incentives over a 1-year period. "Top Air Pollution Penalties" Los Angeles Times April 2, 1991, p. 2-B.

d. Colorado -- Motorists who have been avoiding Colorado's auto emissions tests by tagging their clunkers with collector plates soon may be forced off the road. Owners of vehicles with collector plates will have to buy a 5-year vehicle registration plate, compared to a 1-year registration for most vehicles. The special plate and emissions exemption was originally designed to help owners or cars that were at least 25 years old and used mainly in shows. But too many people abused the exemption by putting the plates on old pickups and cars used for everyday driving. It became a loophole that let the worst polluters stay on the road. The number of vehicles with collector plates mushroomed from 3,000 in 1986 to 39,000 last year and is expected to reach 54,000 this year. "Senate OKs Smog Tests for Collector-Plate Cars Bill Targets Abuse of Special Tags by Owners Whose Clunkers Emit Clouds of Pollution" Rocky Mountain News March 21, 1991, p. 12.

XIII. Incentives for Tree Planting

a. Los Angeles, CA -- The AQMD is proposing to encourage more tree planting in urban areas to shade buildings, cutting down on the use of air conditioning equipment. In Pasadena, utility bill credits are available for customers who plant trees. "40 New Rules Proposed to Clean Southland Air" Los Angeles Times February 1, 1991, p. A-3.

XIV. Incentives to Reduce Electric Demand

a. Beginning in 1984, EPA provided several States with a total of nearly $3 million to develop future acid rain control strategies. The 47 projects funded provided the start for what became known as the State Acid Rain (STAR) Program. This was a unique program because it responded only to the threat of legislation, not to a law already enacted.

One aspect of acid rain control the States are considering seriously is energy conservation. A number of studies have been performed to figure out how much energy, and consequently pollution, can be cut by conservation. STAR participants point out that conservation has a short payback period and eliminates, or at least defers, industry needs for capital construction of facilities. "States Preparing for Acid Rain Legislation" Chemical and Engineering News September 11, 1989, p. 20.

b. San Diego, CA -- The San Diego County Air Pollution Control District is proposing to require special water heaters to be installed in homes. Solar heating equipment would be required on all new swimming pools, hot tubs, and home water heaters. Home that already have other mechanisms to heat water would be required to retrofit with solar equipment on resale. "Clean-Air Panel Unveils 47 Ways to Battle Smog" Los Angeles Times July 30, 1991, p. B-1.

c. Los Angeles, CA -- Officials with Southern California Edison Co. and the Los Angeles Department of Water and Power said major programs would be started to induce consumers to buy energy-saving products, to rely on alternative energy sources such as solar and geothermal, and to phase out burning oil for electric energy production. Edison already is offering a $5 rebate per bulb to customers who buy fluorescent light bulbs. The DWP plans a door-to-door campaign later this year to perform energy audits in homes and give away fluorescent bulbs to low income customers.

   Edison has a major program in place offering incentives to developers who build homes that surpass State efficiency standards. The utility is also working with Texas Instruments Inc. to develop a rooftop solar cell that could provide one-third of the energy for the average home. "Utilities Will Reduce Emissions" Daily News of Los Angeles May 21, 1991, p. N-1.

d. California, Florida, Massachusetts -- have led the nation by mandating increased energy efficiency through tighter building codes. The standards range from requiring specific conservation measures to setting performance goals and allowing for maximum flexibility by designers and builders. The performance standards set an energy budget for a building, which can be achieved through such measures as more efficient lighting, heating, and air conditioning equipment or better insulation. "Good Policy, Bad Times" Totten, Michael and Jeffrey Tyrens. State Government News January 1991, p. 30.

e. According to the report by the Office of Technology Assessment entitled, "Changing by Degrees: Steps to Reduce Greenhouse Gases," policy options for reducing CO_2 emissions from the building sector include: tighter appliance efficiency standards and building energy codes; utility company demand-side management programs to encourage building improvements; information programs such as home energy audits. "Economic Considerations Enter Fray Over Global Climate Change Policies" Zurer, Pamela S. Chemical and Engineering News April 1, 1991, p. 10.

f. Greater efficiency in building can be accomplished through a combination of stricter standards, better energy rating systems for buildings, a consistent set of national guidelines for energy-efficient mortgages (EEMS), and sliding-scale hookup fees (for gas or electric service) tied to the building's energy performance. If buyers are rewarded for purchasing more energy efficient buildings, either through relaxed mortgage terms or rebates or hookup fees, they won't mind that the builder had to pass through the cost of more insulation, good windows, caulk, better mechanical systems, and careful construction.

With an energy-efficient mortgage, for instance, the bank adds energy costs to the principal, interest, taxes, and insurance it typically uses to determine how much to lend a borrower. "How to Improve Energy Efficiency" Issues in Science and Technology Summer 1991, p. 88.

g. California -- Recently, a number of utilities have adopted a least cost utility planning approach that ranks all energy sources, including improvements in energy efficiency, by cost. Under this scheme, if an energy efficiency improvement costs less than a newly constructed power plant and supplies the same amount of energy, then the energy-efficient option must be implemented first.

A 1990 law commits California's utilities to "improve the environment and to encourage the diversity of energy sources through improvements in energy efficiency and development of renewable energy resources, such as wind, solar, and geothermal energy" (CA Assembly Bill No. 3995 1990). Based on recommendations from a diverse group of utilities, regulators, agencies, consumer groups, and environmental organizations who call themselves the Collaborative, the California Public Utilities Commission in August 1990 approved a 100% increase in near-term conservation budgets for investor-owned gas and electric utilities. At the same time, the California Public Utilities Commission approved regulatory reforms that tie the utilities' annual profits in part to their success in delivering energy savings (CPUC 1990).

If the utilities do well at conserving energy, they stand to increase their profits for 1991 by as much as $60 million; poor performance could yield penalties exceeding $30 million.

At least 17 States have adopted Statewide "least-cost conservation mandates comparable to California's; at least 6 have created analogous conservation-incentive regimes for their utilities and many more are considering both measures. "Statehouse Effect Combats

Greenhouse Effect" Cavanaugh, Ralph C. and Arthur H. Rosenfeld. The Journal of State Government. Vol. 63, p. 96.

h. According to William Reilly, EPA's "green lights" program aims to decrease energy used for lighting. Lighting accounts for 1/4 of the U.S.'s energy needs, and 90% of all lighting is associated with commercial and industrial plants. Under the green lights program, some 30 major companies will use new energy saving technologies to meet their lighting needs. "Economic Incentives for Environment Protection" Chemical and Engineering News. March 25, 1991, p. 16.

i. Canada. Demand management has the potential to yield a substantial amount of power at a cost that is less than or comparable to building new generating facilities. Ontario Hydro's goal is to save 4.5 million kilowatts by 2000 through demand management. "Changing Attitudes About the Environment in the 1990s: Sixth Canadian Environmental Government Seminar" Journal of Air and Waste Management Association April 1991. Volume 41, No. 4., p. 425.

j. Washington State. A Washington law, enacted in 1980, gives utilities an explicit, monetary incentive to experiment with new types of resources. The law directs the Utilities and Transportation Commission to give a higher rate of return on equity on a utility's initial investment in energy efficiency, renewable energy, and cogeneration (known as the "equity kicker"). The purpose of the higher profits is to give the utility a greater incentive to pursue alternative ways of meeting energy demand that are cheaper and more environmentally benign that traditional generating plants. Through the extra profits, the utility receives part of the savings from the cheaper resource.

The second incentive is a deduction from public utility tax. A utility can deduct from its gross income the cost of production of alternative resources. The lower taxes are reflected in the utility's rates, so the customers receive the benefit of this tax deduction.

The new effect of these 2 incentives is this: Stockholders receive an incentive to choose alternative resources, and this incentive is financed in part by higher utility bills and in part by lower State tax collections. However, utility participation in the tax deduction incentive has been relatively low.

After 10 years of testing the equity kicker, Washington has restricted its use through a renewed act in 1990. Cogeneration and renewable resources no longer qualify, and conservation programs are limited to new residential construction and those that target the elderly and low income.

Glenn Blackmon suggests that utilities should be allowed to capitalize interest and earnings on conservation investments not yet included in rates. This mechanism would be similar to the allowance for funds used during construction (AFUDC) on construction projects. Once a power plant goes on-line, the utility is allowed to recover both its construction cost and the accumulated interest on its investment. Similarly, regulators could establish an allowance for funds used to conserve energy (AFUCE) that would accumulate until the utility's next general rate case. "Conservation Incentives: Evaluating the Washington State Experience." Blackmon, Glenn. Public Utilities Fortnightly January 15, 1991, pp. 24-27.

k. Milwaukee, WI -- Venu Gupta, business operations manager for the Milwaukee Public Library System, designed a retrofit lighting system using 32-watt fluorescent lamps and high-frequency electronic ballasts in the library systems' fluorescent lighting fixtures. The result has been energy cost savings of $55,000/yr.

The project included installing 23,000 Sylvania lamps and 11,500 Magnetek Triad electronic ballasts in more than 10,000 fixtures at 13 libraries and was completed in 4-1/2 months.

Wisconsin Electric offered a rebate for the purchase of energy-saving electronic ballasts, because its high-frequency operating characteristics make the ballast more efficient and optimize the performance of the fluorescent lamps. "Milwaukee Libraries Retrofit Light Systems" American City & County June 1991, p. 26.

l. Virginia Beach, VA -- The City Council has approved the installation of an ice-based air conditioning and cooling system to its new judicial building and to an addition to its jail. The system, known as cool storage, makes ice at night when electricity costs are lowest, and stores it in tanks to cool buildings the next day. Based on current electrical rates, Virginia Beach taxpayers will save about $1.6 million in cooling costs during the 20-year life of the equipment, which will be added to the city's Municipal Center central plant on nearby vacant land. 60 ice tanks will be partially buried and shielded by a brick wall. "South" American City and County June 1991, p. 26.

m. Brenham, TX -- Wholesale customers of the Lower Colorado River Authority (LCRA) have a unique component to their electric rate schedules which offers substantial opportunities for energy cost reduction through load or demand management. LCRA rate schedules contain the typical billing components of all utilities: customer charges, energy charges, consumption charges and, for commercial customers, demand charges. But LCRA's wholesale customer demand charges fall into 2 categories: coincident peak (CP) and non-coincident peak (NCP).

The CP charge is the fee per kw of demand charged to the wholesale customer at the time of LCRA's total system peak demand. LCRA has a summer and a winter CP charge, the summer charge being ~$2.50/kw higher than the winter CP charge. By contrast, the NCP charge is less than $2/kw. The incentive for demand control during coincident peaks is over 4 times as great as demand reduction during non-coincident peak.

The City of Brenham is one of many LCRA wholesale customers that has installed a load management/peak monitoring system that tracks LCRA's load continuously, as well as tracking hourly peak reports. By monitoring weather data along with LCRA loads, city management attempts to forecast LCRA system peaks. When a peak is predicted, the city notifies participating industrial customers via a paging system. Industrial users can respond by shutting down or cycling off nonessential equipment, usually for a 10-30 minute cycle.

Though participation among industrial customers is voluntary, the incentive to participate is monetary. If management correctly predicts system peaks and lowers Brenham's percent of CP, the city's CP demand charge is less, and these savings are allocated to the participating industrial customers. Blue Bell, one of 12 participating customers, saved ~$40,000 in utility costs during the summer billing cycle (June-September) last year by shedding load during coincident peak. "Municipal Load Shedding Yields Big Savings" Texas Town and City, p. 12. (date?)

n. Osage, Iowa -- Wes Birdsall, manager of the Osage Municipal Utility launched an energy conservation program. He used IR scanners to show residents where their homes were leaking heat. In 1975, he set up new insulation specifications. The utility gave away thousands of dollars worth of energy-saving devices, like water-heater jackets and low-flow shower heads, as well as shade trees from its nursery. The town reduced its energy use, reduced rates by 19% and, by making energy-saving offers, has become a magnet to

new businesses. "Our Town: Americans Take an Energy Lesson from this Farm Belt Community" Howard, Beth. Omni May 1991, p. 12.

o. Osage, Iowa -- Got together with their municipal utility company and decided a move to efficiency was a move to profitability. What happened was a small-town success story as Osage actually prepaid its debt and accumulated a $2 million budget surplus.

Osage's municipal utility helped its citizens weatherize their homes. The result: energy rates were cut 5 times in 5 years and average consumer bills were reduced to half of those found on the State level. The low rates attracted 2 large businesses to the area. And with over $1,000 per household of tax-free savings on energy bills recirculating on Main Street, the utility, the people, and the environment have prospered. Even better news is that what was done in Osage can be and is being done in similar forms around the nation. "The 4,000 Townspeople of Osage, Iowa Had a Bright Idea" Budzinski, Mike Current Municipal Problems. p. 310.

p. New York -- Incorporating the environmental cost of burning fossil fuels into the power planning process is a crucial step. The State of New York is pioneering this approach. Under an innovative program, a competitive market is being set up whereby independent power producers must bid against each other for power supply contracts. Suppliers planning to burn fossil fuels are required to add nearly 1 cent/kwhr to account for other environmental costs. "Communication: A Global Agenda for Clean Air" Energy Policy July/August 1990, p. 584.

XV. Environmental Cities Coalition

a. Minnesota -- Several Minnesota cities have grouped together to form a Stateside Environmental Coalition to encourage the State to work on environmental problems and issues. Charter members of the group are St. Paul; Minneapolis; Duluth; Mankato; Robbinsdale; Shoreview; St. Louis Park; Egan; Flacon Heights; Golden Valley; Inver Grove Heights; Minnetonka; Plymouth; Arden Hills; Coon Rapids; and Cottage Grove.

Cities in the Coalition will tackle issues such as mandatory recycling, bans on the sale and/or use of high-phosphorous lawn fertilizers and dish detergents, energy conservation, air quality, global warming, transportation, regulation of distribution of nonrecyclable products, etc. Members are not required to adopt regulations on every issue of join every action the group takes.

Coalition members will promote Statewide environmental protection legislation, perhaps presenting some of their local ordinances as model legislation for the State. St. Paul Councilman Bob Long chairs the group. "Activities" Minnesota Cities February 1991, p. 33.

b. Sacramento, CA -- A conference of elected officials slated to meet to focus on specific issues of air pollution and to come up with a list of 5 to 10 ideas to try and adopt in the represented jurisdictions. Among some of the ideas being considered are: devoting 5% of all public works budgets to mass transit; locating 1/2 of all new developments within 1/4 mile of transit stations; requiring private companies to charge their workers for parking; and using that money to support transit. For info call 443-1033. "Tired of Talk, Environmentalists Ask Officials to Set Goals" Sacramento Bee March 15, 1991, p. B-1.

Session I: Innovative Uses of Taxes and Fees

John Glenn

Louisiana Environmental Scoring System/Property Tax Exemptions

Louisiana Department of Environmental Quality

Baton Rouge, Louisiana

LOUISIANA ENVIRONMENTAL SCORING SYSTEM/PROPERTY TAX EXEMPTIONS

by

John Glenn
Louisiana Department of Environmental Quality
Baton Rouge, Louisiana

I. INTRODUCTION

A. Louisiana. 1990

1. 46th in per capita income - 1st in toxic emissions

2. Department of Environmental Quality (DEQ) fining companies - Department of Economic Development (DED) giving same companies giving same companies millions in tax exemptions

3. Goals and policies of Departments inconsistent

B. History

1. August 1990, Board of Commerce and Industry (BCI) Board Meeting - CITGO application

2. Governor freezes all tax exemptions until DED and DEQ can come up with unified policy recognizing the need for economic growth and environmental protection

3. August 1990, negotiations for rulemaking begin

4. December 19, 1st Draft Emergency Rules and Regulations go into effect

5. December 27, 1st BCI meeting under emergency rules and regulations

6. August 20, 1991, "Environmental Scorecard" promulgated

II. ENVIRONMENTAL SCORECARD FORMULA

A. Environmental compliance record

B. Emissions per worker

C. Bonus points, 5 categories

D. Conditions for environmental review

III. MEASUREMENTS OF EFFECTIVENESS

A. Tax dollars returned to local governments

B. Emission reduction pledges by 1996

IV. CONCLUSIONS

A. Process very important

B. Many improvements in scorecard possible

C. Economic based incentives work

LOUISIANA ENVIRONMENTAL SCORING SYSTEM/PROPERTY TAX EXEMPTIONS

Environmental Scorecard

by

John Glenn
Louisiana Department of Environmental Quality
Baton Rouge, Louisiana

Between August of 1990 and August of 1991, Louisiana developed the Rules and Regulations for an "Environmental Scorecard." The scorecard provides a formula which links companies environmental records to the percentages of industrial tax exemptions that they qualify for. The primary purposes of the scorecard are to provide economic incentives to companies to reduce criteria air pollutants and toxic emissions, and to follow the State's environmental regulations.

The scorecard also creates an economic development policy that favors labor intensive, pollution free or low emitting industries over those which create larger amounts pollution and fewer jobs. the citizens of Louisiana and especially parishes (counties) most heavily impacted by industry are the benefactors of these policies.

Division of Policy Analysis and Planning

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OBJECTIVE

* DEVELOP ECONOMIC INCENTIVES FOR POLLUTION PREVENTION AND ENVIRONMENTAL COMPLIANCE

STRATEGY

* CONTINUE TO IMPLEMENT AND REFINE INDUSTRIAL TAX EXEMPTION PROGRAM
* DEVELOP RULES AND REGULATIONS FOR POLLUTION AND RECYCLING TAX PROGRAMS

Division of Policy Analysis & Planning

DPAP

FINAL

RULES AND REGULATIONS

FOR

INDUSTRIAL TAX EXEMPTION

PROGRAM

PROMULGATED

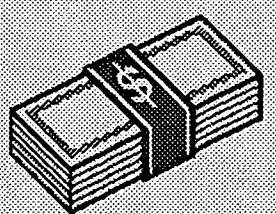
AUGUST 20, 1991

Tax exemption formula

• Economic benefit	50 points
• Environmental compliance record	25 points
• Emissions per job	25 points
total maximum	100 points
• Bonus	0-55 points

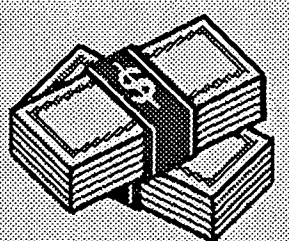
Point deductions

-1 points



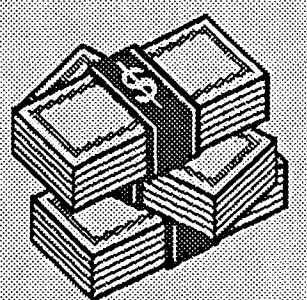
0-$3000

-5 points



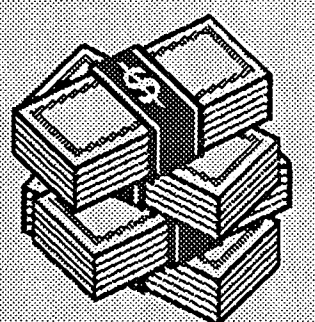
$3001-
$10,000

-10 points



$10,001-
$15,000

points



$15,001-
$20,000

amount of penalty

Emissions per worker

Pounds of emissions per worker	Points received
0-500	25
501-1,000	20
1,001-2,500	15
2,501-5,000	10
5,000-10,000	5
over 10,000	0

Bonus points

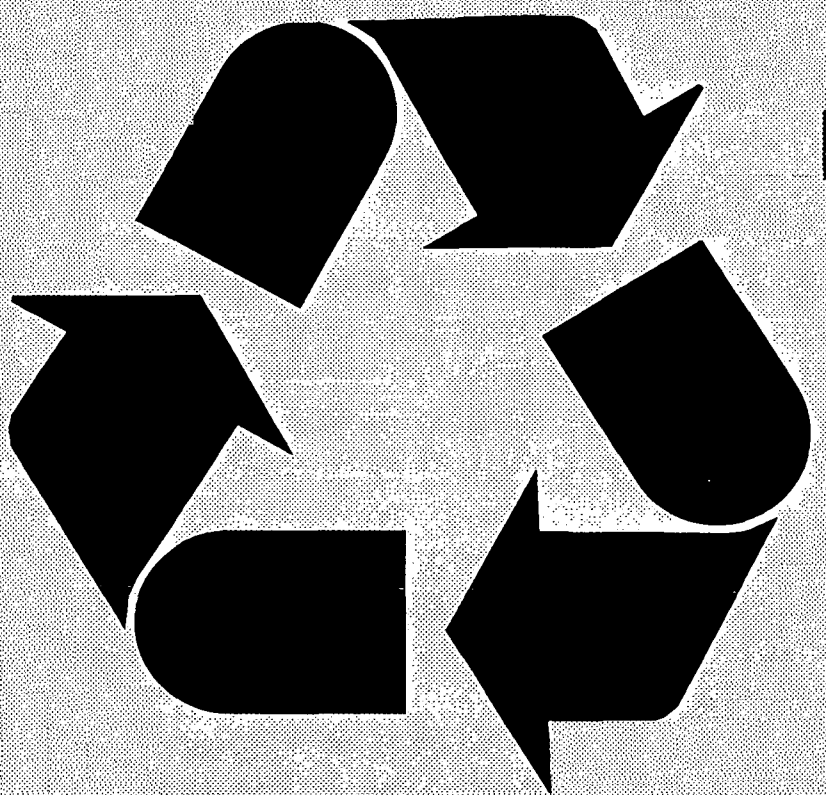
...tives to reduce emissions

55 possible points

Bonus points

For DEQ approved Emissions Reduction Plan - 15 possible points

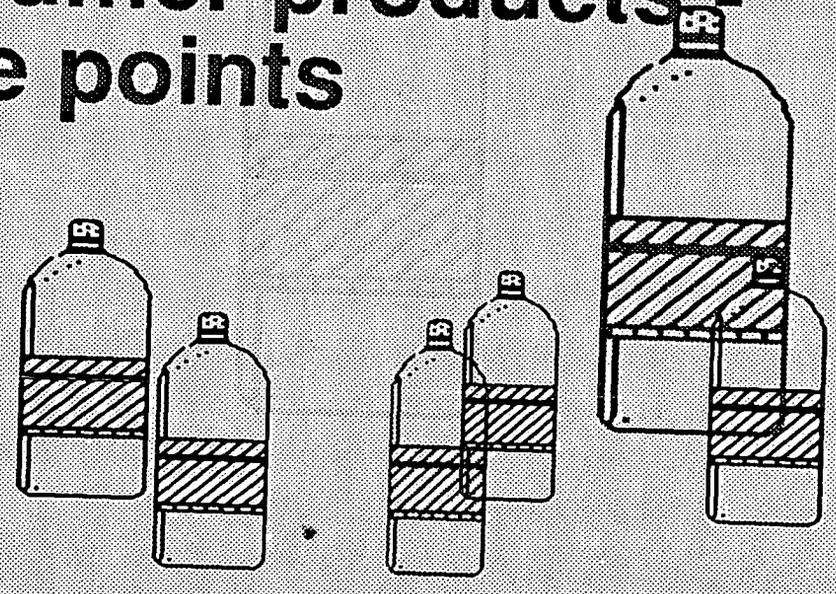
Bonus points



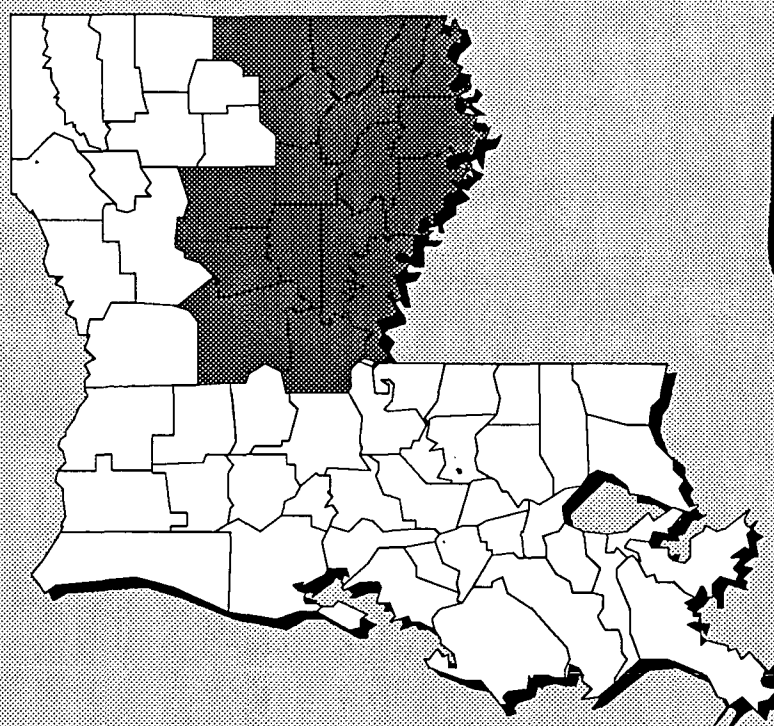
Develop recycling systems - 5 possible points

Bonus points

Recycling companies or manufactured consumer products - 10 possible points



Bonus points

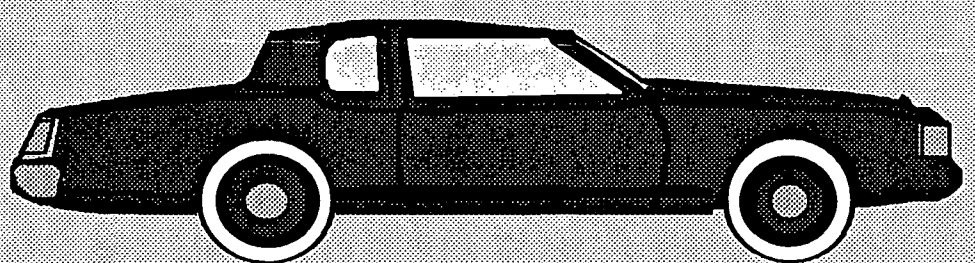


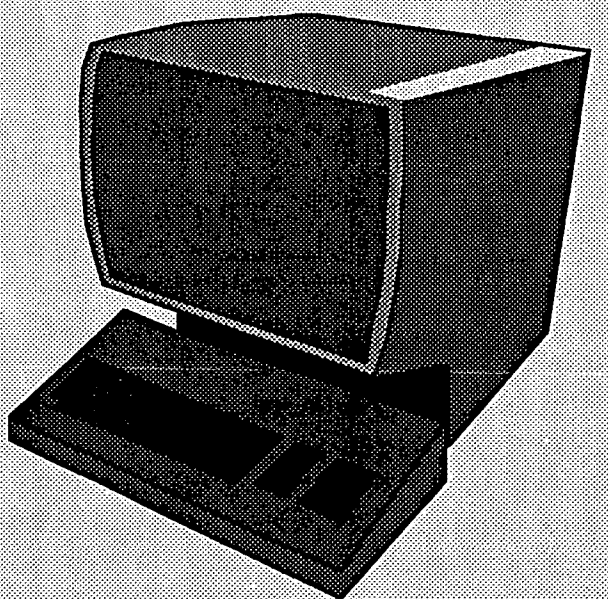
New jobs for high unemployment areas

15 possible points

Bonus points

diversify the state's economic base - 10 possible points





Conditions for full environmental review

more than 25 points for compliance deductions or a history of multiple violations

25

Conditions for full environmental review

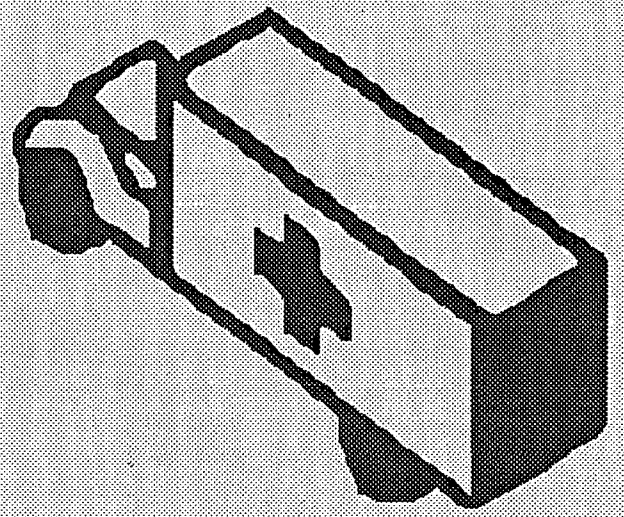
proven groundwater or habitat contamination

Conditions for full environmental review

a history of environmental problems resulting in fatalities

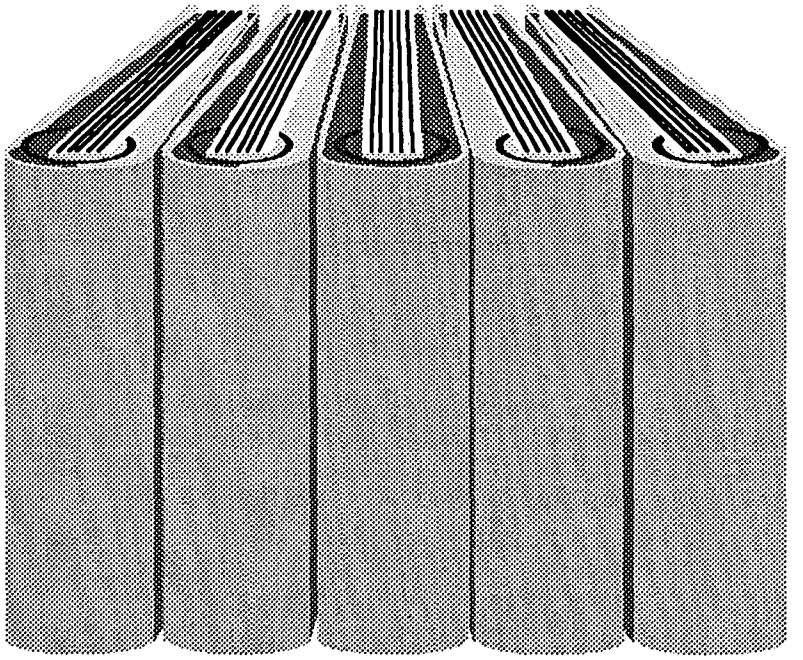
Conditions for full environmental review

a history of major catastrophes indicating negligence



Conditions for full environmental review

failure to follow nationally accepted environmental standards



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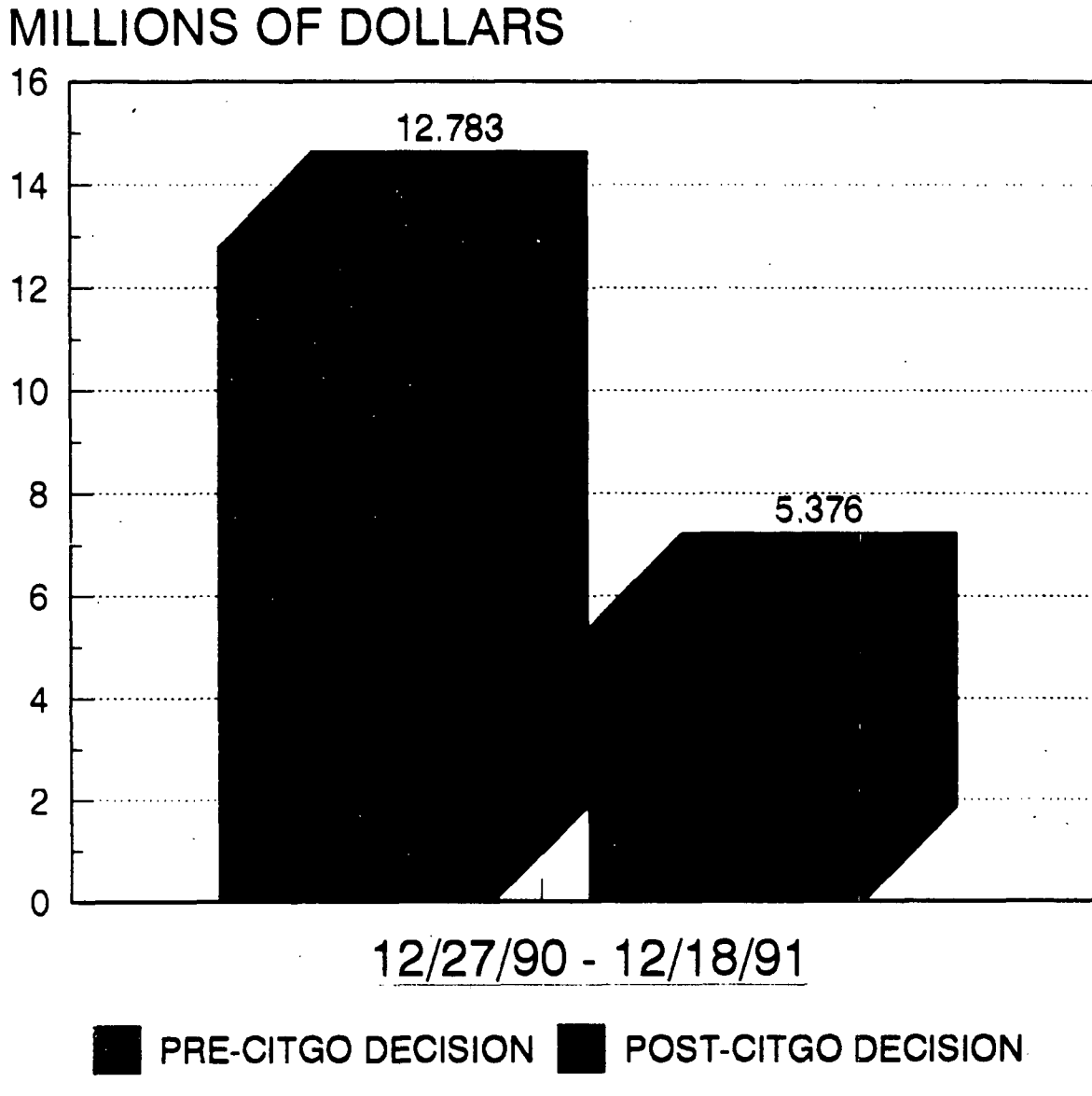
AMOUNT OF PROPERTY AND SALES TAXES RETURNED TO PARISH GOVERMENTS DUE TO INDUSTRIAL TAX EXEMPTION PROGRAM



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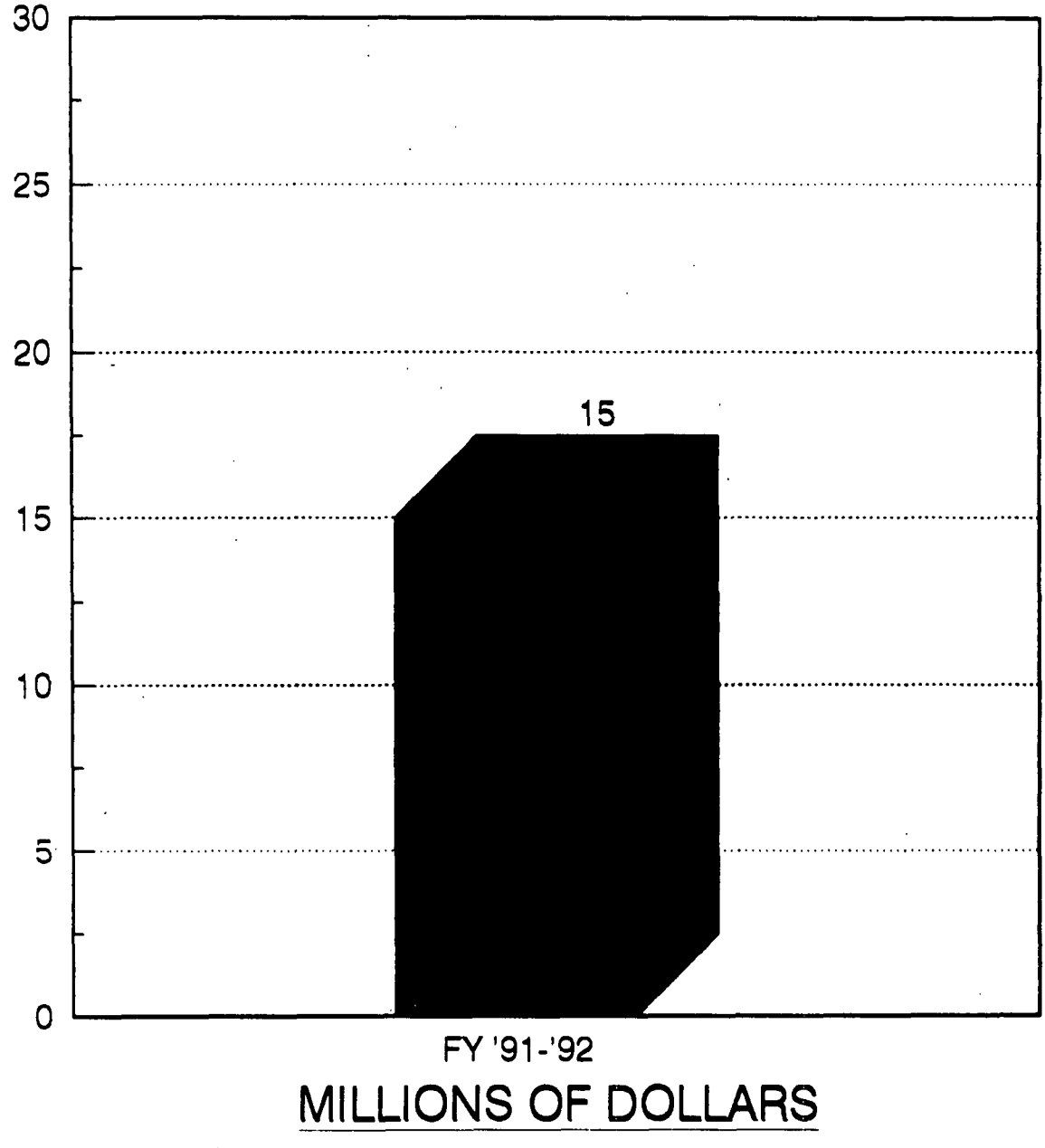
Division of Policy Analysis and Planning

PROJECTED AMOUNT OT PROPERTY AND SALES TAXES RETURNED TO PARISH GOVERNMENTS DUE TO INDUSTRIAL TAX EXEMPTION PROGRAM DURING FY 91-92



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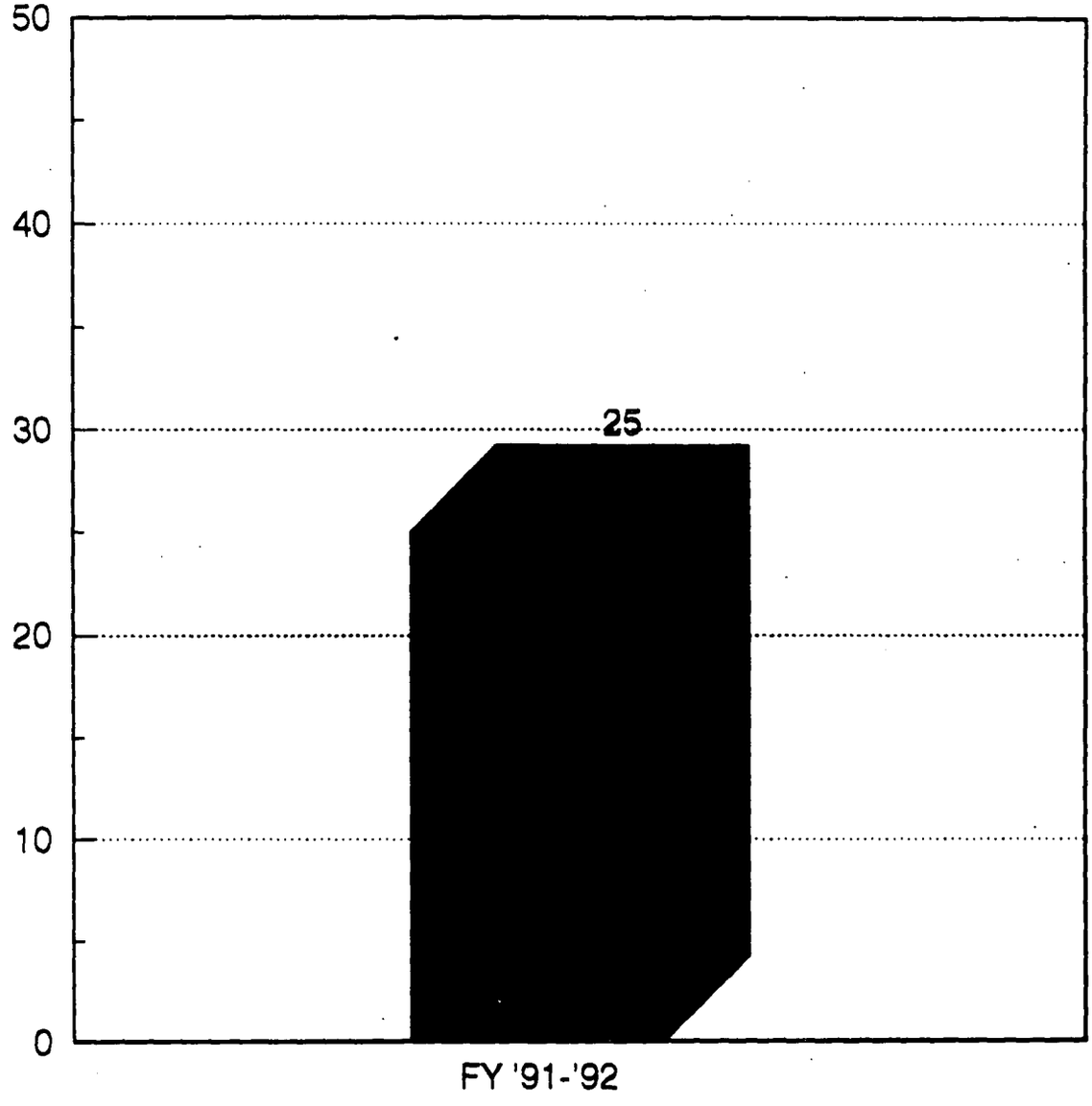
PROJECTED EMISSIONS REDUCTIONS RESULTING FROM INDUSTRIAL TAX EXEMPTION PROGRAM DURING FY '91-'92



MILLIONS OF POUNDS OF TOXIC EMISSIONS

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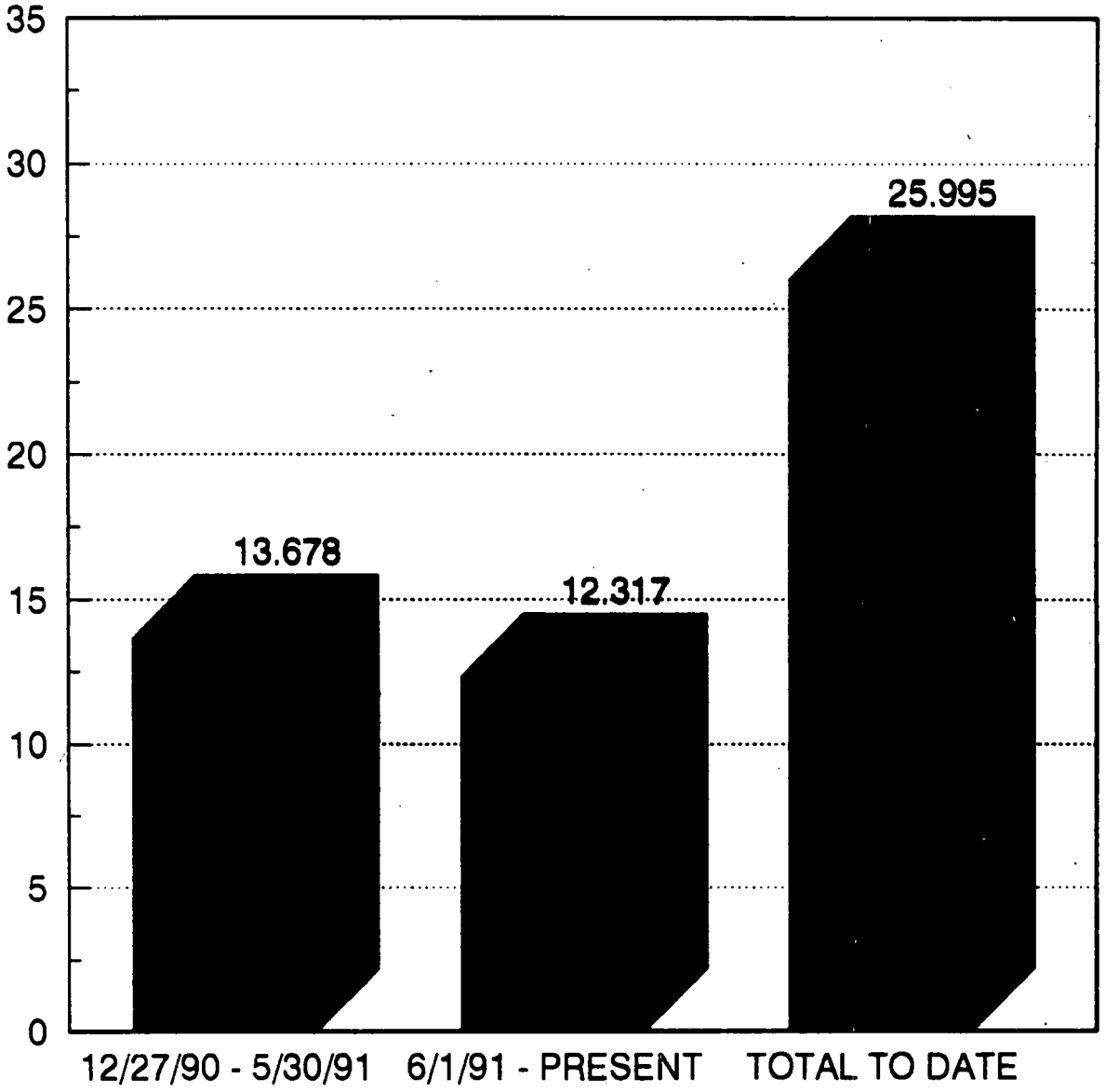
EMISSIONS REDUCTIONS RESULTING FROM INDUSTRIAL TAX EXEMPTION PROGRAM



MILLIONS OF POUNDS OF TOXIC EMISSIONS

Deborah Gordon

Drive Plus: Sales Tax/Rebate Based Upon Vehicle Fuel Efficiency

Union of Concerned Scientists

Berkeley, California

EPA INNOVATIVE REGULATORY STRATEGIES WORKSHOP

SESSION I:
INNOVATIVE USES OF TAXES AND FEES FOR MOBILE SOURCES

DRIVE PLUS:
SALES TAX/REBATE BASED UPON VEHICLE EFFICIENCY AND EMISSIONS

by
Deborah Gordon
Senior Transportation Analyst
Union of Concerned Scientists

I. Societal Problems Associated with Motor Vehicles
- A. Air Pollution
  - 1. Half of ozone-forming emissions of HC and NO_x from vehicles
  - 2. 70-90 percent of local CO emissions from motor vehicles
  - 2. 25 percent of U.S. carbon dioxide emissions from vehicles
- B. Excessive and Undiversified Use of Oil
  - 1. U.S. imports half of the 17 million barrels of oil a day used
  - 2. Over two-thirds of U.S. petroleum use devoted to motor vehicles
  - 3. Oil accounts for 97 percent of fuel used for motor vehicles
- C. Motor Vehicle Injuries and Fatalities
  - 1. 14.5 million highway motor vehicle accidents annually
  - 2. Half million severe injuries annually
  - 3. 2.7 million moderate injuries annually
  - 3. 50,000 motorist fatalities annually

II. Current Regulatory Requirements for Motor Vehicles
- A. Energy Efficiency - CAFE standards
- B. Emissions - Clean Air Act
- C. Safety - NHTSA Crash Tests

III. DRIVE Plus Program Design
- A. Feebate components
  - 1. carbon dioxide
  - 2. vehicle emissions
- B. Revenue neutral/self-financing
- C. Sticker on vehicle - consumer information component

IV. Benefits of DRIVE Plus Incentive Programs
- A. Mutually reinforcing of current standards
- B. Creates incentives for consumers to buy cars that manufacturers must sell
- C. Provides incentives to do better than standards require
- D. Coordinates design of multiple vehicle attributes (efficiency, safety, emissions)
- E. Provides information to consumers that is currently hidden in the market
- F. Backs information with rebate which makes information more credible to buyer

V. The Prospects of Consumer Incentive Programs
- A. Status of DRIVE Plus legislation in California
- B. Proposals in other states and in federal legislation
- C. Ontario, Canada Law
- D. National Energy Strategy

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DRIVE Plus (**D**emand-based **R**eductions **I**n **V**ehicle **E**missions PLUS Improvements in Fuel Economy) is a proposal to create self-financing tax incentives in California for consumers to buy cleaner and more fuel-efficient cars and trucks. Sales tax surcharges on vehicles with higher emissions of criteria pollutants and carbon dioxide (CO_2) would pay for sales tax reductions on more efficient and lower-emitting cars and trucks. The proposed incentives help vehicle manufacturers meet sales goals contained in existing federal and state emissions and fuel economy standards while coordinating energy and environmental goals. DRIVE Plus would also encourage manufacturers to market and consumers to purchase vehicles that are cleaner and more efficient than the standards require. The program provides efficiency and emissions information to consumers at the point of purchase, helping them make better purchase decisions. DRIVE Plus hold the promise of being politically feasible and it imposes no net new taxes and requires no new appropriations from the state general fund.

DRIVE Plus was passed by the California Legislature by a large majority in 1990. However, it was vetoed by then-Governor Deukmejian on his last day in office. The bill was reintroduced in 1991, but withdrawn from consideration late in the session. Reintroduction in 1992 is expected.

Although DRIVE Plus has not yet become law in California, it is an innovative program that other states and countries are quickly moving to emulate. Legislators in five other states have introduced similar legislation while at least eight other states are considering the program. The province on Ontario, Canada has already enacted a revenue-positive version modeled after DRIVE Plus and other countries such as the U.K. are eager to follow suit.

EPA INNOVATIVE REGULATORY STRATEGIES WORKSHOP

DRIVE PLUS:

Sales Tax/Rebate Based Upon Vehicle Fuel Efficiency and Emissions

by
Deborah Gordon
Senior Transportation Analyst
Union of Concerned Scientists

DRIVE PLUS

stands for

Demand-based Reduction In Vehicle Emission
PLUS
Improvements in Fuel Economy

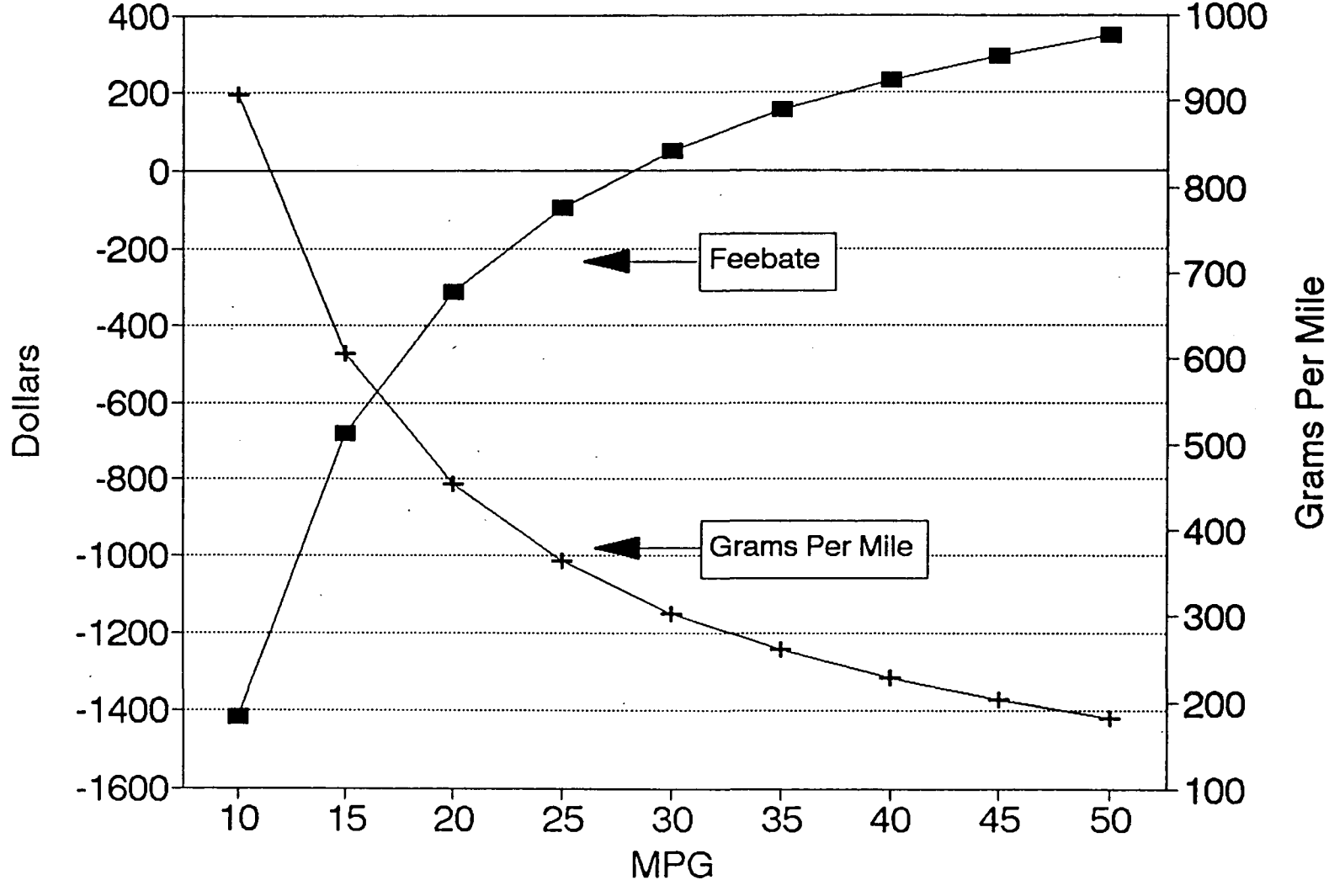
Recently Adopted CARB New-Car Emissions Standards

	Car Types*						
	Conven -tional	Conven -tional	TLEV	LEV	ULEV	ZEV	
	Standards (grams/mile)						
NMOG	0.39	0.25	0.125	0.075	0.04	0.0	
NOx	0.4	0.4	0.4	0.2	0.2	0.0	
CO	3.4	3.4	3.4	3.4	1.7	0.0	
	Phase-In Schedule (% of Fleet) for Each Type						Fleet Average NMOG**
Model Year							
1994	10%	80%	10%				0.250
1995		85%	15%				0.231
1996		80%	20%	-			0.225
1997		73%		25%	2%		0.202
1998		48%		48%	2%	2%	0.157
1999		23%		73%	2%	2%	0.113
2000				96%	2%	2%	0.073
2001				90%	5%	5%	0.070
2002				85%	10%	5%	0.068
2003				75%	15%	10%	0.062

* Conv 1 = Conventional cars as of 1991, Conv 2 = Conventional cars as of 1994, TLEV = Transitional Low-Emission Vehicle, LEV = Low-Emission Vehicle, ULEV = Ultra-Low-Emission Vehicle, ZEV = Zero-Emission Vehicle

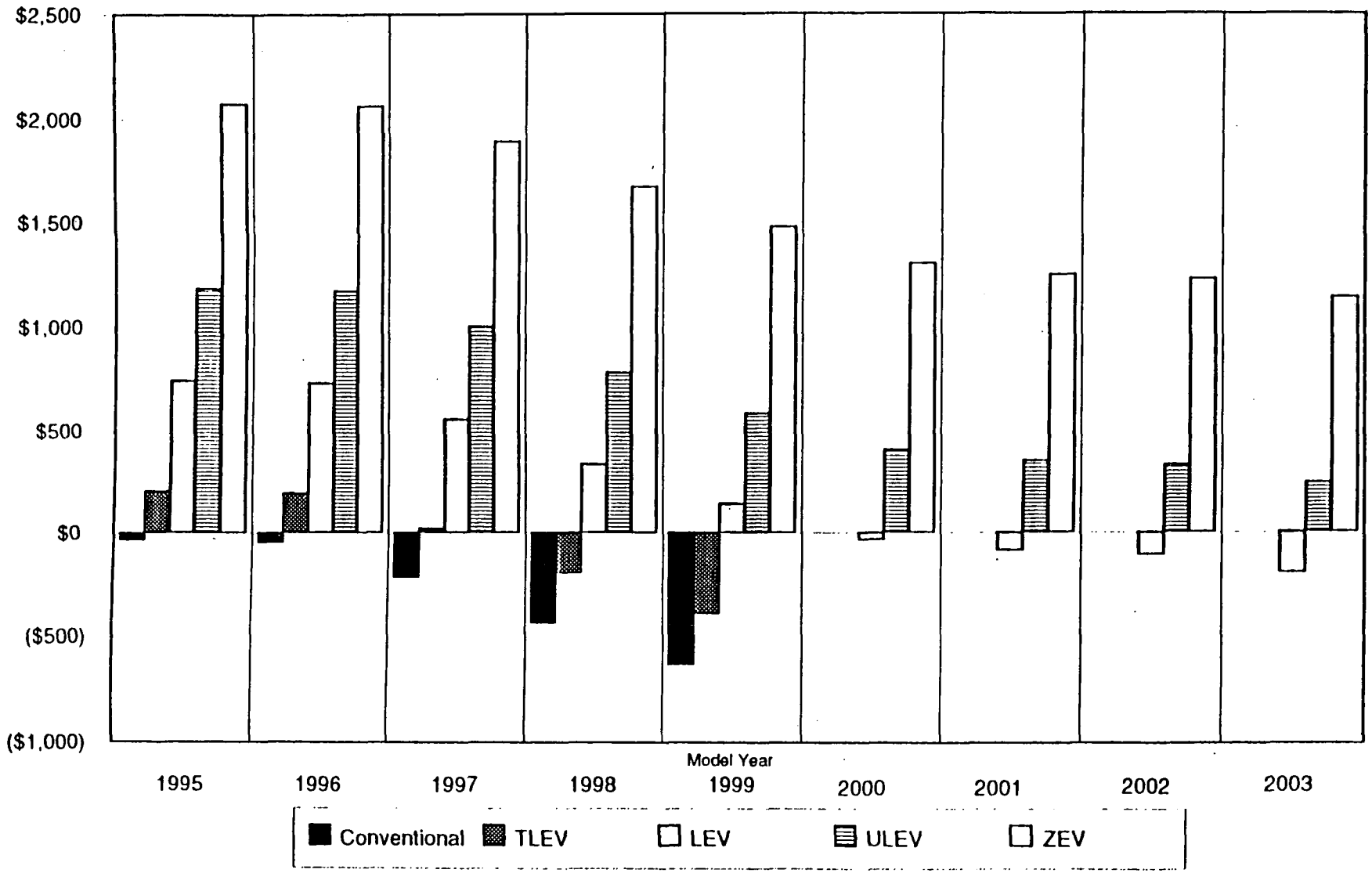
** NMOG = Non-methane organic gases, which are the type of hydrocarbon emissions regulated by the Air Resources Board.

DRIVE+ CO2 Feebates ($22/ton)



DRIVE+ Credits and Surcharges
Based on CARB's New Emission Standards

(excluding CO2 factor)



DRIVE+ Credits and Surcharges
Applied to CARB New-Car Standards
(excluding CO_2 factor)

	Model Year								
Cars*	1995	1996	1997	1998	1999	2000	2001	2002	2003
Conv 1	*-$1,098*	*-$1,110*	*-$1,280*	*-$1,501*	*-$1,695*	*-$1,874*	*-$1,927*	*-$1,949*	*-$2,038*
Conv 2	-$36	-$48	-$219	-$439	-$634	*-$812*	*-$866*	*-$888*	*-$976*
TLEV	$205	$193	$22	-$199	-$393	*-$572*	*-$625*	*-$647*	*-$736*
LEV	$741	$729	$558	$337	$143	-$35	-$89	-$111	-$199
ULEV	$1,182	$1,170	$1,000	$779	$585	$406	$353	$331	$242
ZEV	$2,073	$2,061	$1,891	$1,670	$1,476	$1,297	$1,244	$1,222	$1,133

Note: Amounts shown in small italic print are for car types that will be phased out under California Air Resources Board regulations. The amounts are those that would apply if the CARB allowed manufacturers to sell these car types.

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* Conv 1 = Conventional cars as of 1991, Conv 2 = Conventional cars as of 1994, TLEV = Transitional Low-Emission Vehicle, LEV = Low-Emission Vehicle, ULEV = Ultra-Low-Emission Vehicle, ZEV = Zero-Emission Vehicle

EXAMPLE OF DRIVE+ STICKER

STATE OF CALIFORNIA

DRIVE+ RATING

MODEL: 1990 BRAND X CAR

FEATURES: XX CUBIC INCH ENGINE,
X CYLINDERS,
CATALYTIC CONVERTER,
CALIFORNIA EMISSION CONTROL SYSTEM

TOTAL EMISSIONS RATING
% CLEANER THAN AVERAGE* :

32%

DRIVE+ REBATE = $ 316

+

CO2 "GREENHOUSE"
EMISSION RATING
% CLEANER THAN AVERAGE* :

39%

DRIVE+ REBATE = $ 138

TOTAL REBATE = **$454**

* Emission ratings adjusted to cover program administrative costs.

FINANCIAL INCENTIVES TO IMPROVE VEHICLE FUEL EFFICIENCY

1991 LEGISLATIVE PROPOSALS

LEGISLATIVE PROPOSAL	REVENUE NEUTRAL (Y or N)	ACROSS (A) OR WITHIN (W) SIZE CLASSES	CONSUMER INCENTIVE TYPE (1)	MANUFACTURER INCENTIVE TYPE (2)	SCRAPPAGE INCENTIVE INCLUDED	VEHICLE ATTRIBUTES INCLUDED (3)	STICKER PLACED ON VEHICLE	PROPOSED (P) OR ENACTED (E)	I--------COMMENTS--------I
STATE POLICIES:									
CA DRIVE- SB431	Y	A	ST	N/A	N	TCO2/UE	Y	P	Legislature passed but Governor vetoed in 1990; Reintroduced in 1991.
NRDC DRIVE- 2	Y	A	ST	N/A	Y	LCO2/UE	Y	NO BILL	Increases registration fees on all vehicles.
Maryland H 685	N	A	ST	N/A	N	MPG	N	P	
Mass. HB 2086	Y	W	ST	N/A	N	MPG	Y	P	No action in 1991; to be reintroduced in 1992.
Maine HP 1709	N	W	ST	N/A	N	MPG	Y	P	
Arizona HB 2425	Y	W	C	N/A	N	MPG/UE	Y	P	No action in 1991; to be reintroduced in 1992.
Wisconsin AB 577	N	N/A	GF	N/A	N	MPG	N	P	Guzzler fee of $20/mpg on models below the fleetwide average fuel economy.
FEDERAL POLICIES:									
Scheuer HR 1583	Y	W	C	N/A	N	TCO2	Y	P	
Gore S 201	N	W	IT	GT	N	MPG	N	P	Part of omnibus legislation in the World Environment Policy Act.
Bennett HR 51	N	A	IT	N/A	N	MPG	N	P	
Wirth S 741	Y	A	C	N/A	N	TCO2/S	Y	P	Part of an omnibus Energy Policy proposal in Senate.
Synar HR 2960	Y	A	C	N/A	N	LCO2/VF/AF	Y	P	Feebate based on volume-adjusted, fuel-cycle carbon dioxide emissions.
Dingell	N	A	N/A	ITC	N	MPG	N	NO BILL	
INTERNATIONAL POLICIES:									
Ontario Retail Sales Act of 1991	N	A	C	GT	N	MPG	Y	E	Separate schedule for cars and sport utility vehicles; revenue generating.

NOTES:

1. *Consumer incentives inlcude: "C" - cash; "ST" - sales tax rollback; "IT" - income tax deduction; "GF" - gas guzzler fee assessment.*
2. Manufacturer incentives include: "GT" - gas guzzler tax; "ITC" - investment tax credits.
3. Vehicle attributes include: "TCO2" - tailpipe carbon dioxide emissions; "LCO2" - life-cycle (fuel production, transmission, and combustion) carbon dioxide emissions; "S" - safe vehicle design; "UE" - urban air emission levels of hydrocarbon, nitrogen oxides, carbon monoxide, and particulates; "AF" - use of alternative fuels; "VA" - volume adjusted for vehicle size; and "MPG" - vehicle fuel economy.

"N/A" means not applicable.

12/10/91

Kevin McCarthy

Alternative Fuels Programs

Office of Legislative Research

Hartford, Connecticut

EPA INNOVATIVE REGULATORY STRATEGIES WORKSHOP

Alternate Fuels Programs in Connecticut

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CONNECTICUT'S INCENTIVES FOR NATURAL GAS VEHICLES

In the Spring of 1990, the ranking member of the Energy and Public Utilities committee of the Connecticut state legislature suggested that the committee investigate the possibility of providing state incentives to promote alternative fuel vehicles. Following usual legislative practice, the committee established a task force to study the issue. The task force, consisting of legislators, utility and business representatives, and regulatory agencies, met over the summer. The task force recommended that the state provide tax incentives for alternate fuel vehicles and eliminate certain regulatory barriers to their use.

This concept was introduced as a bill in the regular 1991 session. As drafted, the bill provided a 10% business tax credit for expenses associated with alternate fuel vehicles and exempted such vehicles and related equipment from the sales tax. The draft bill also allowed alternate fuel vehicles to use the state's one highway tunnel and allowed the administrative services department to give a price preference of up to 10% for alternate fuel vehicles. The Energy Committee reported the bill to the Finance Committee, which imposed a 1993 sunset date for the tax benefits and limited its provisions to vehicles powered by natural gas. The bill was adopted and went into effect October 1, 1991. Several companies have already taken advantage of its provisions.

The bill's sponsor anticipates introducing legislation this year that would extend the bill's sunset date. There also may be an effort to extend the tax benefits to other alternate fuels. Given the state's fiscal climate, the fate of these proposals is uncertain.

Among the policy issues raised by the bill are: (1) whether the state should support specific technologies given the infrastructure needed for certain alternate fuels and (2) how the state should regulate sales of alternate fuels by utility companies.

PA 91-179—sHB 6740
Energy and Public Utilities Committee
Finance, Revenue and Bonding Committee
Judiciary Committee

AN ACT ENCOURAGING THE USE OF VEHICLES POWERED BY CLEAN ALTERNATIVE FUELS

SUMMARY: This act provides a credit against corporate business taxes of 10% of the expenses of equipment associated with natural gas powered vehicles. It also exempts natural gas vehicles, equipment to convert vehicles to natural gas, and natural gas filling station equipment from the sales tax. The credit applies to expenses paid or incurred in income years that start on or after January 1, 1991 but before January 1, 1993. The exemption applies to sales on or after October 1, 1991 but before January 1, 1993.

The act allows natural gas vehicles to use tunnels on highways. Under prior law, this was a class C misdemeanor, subject to a fine of up to $500 and imprisonment for up to three months. (The one highway tunnel in the state is on the Wilbur Cross Parkway).

The act allows the commissioner of administrative services to give a price preference of up to 10% for (1) vehicles powered by natural gas or (2) vehicles powered by other fuels and the equipment to convert them to use natural gas, either exclusively or with another fuel.
EFFECTIVE DATE: October 1, 1991

FURTHER EXPLANATION

Business Tax Credits

The act creates a credit against various business taxes equal to 10% of certain costs associated with natural gas vehicles. The credit applies to expenses incurred or paid for:

1. equipment that is incorporated or used in a compressed natural gas (CNG) filling station,
2. equipment that is incorporated or used in the conversion of a vehicle to natural gas or to natural gas and another fuel, and
3. the added cost of buying a vehicle that is powered by natural gas only.

Filling station equipment includes compressors, storage cylinders, associated framing, tubing and fittings, valves, fuel poles, and fuel delivery lines. The credit also applies to the costs of installing this equipment.

The vehicle conversion equipment includes storage cylinders, cylinder brackets, regulated mixers, fill valves, pressure regulators, solenoid valves, fuel gauges, electronic ignitions, and alternative fuel delivery lines. In order to be eligible for the credit, the converted vehicle must meet generally accepted standards. These standards include, among others, those set by the American Gas Association, the National Fire Protection Association, the American National Standards Institute, the American Society of Testing Materials, and the American Society of Mechanical Engineers.

The added cost of buying a natural gas vehicle is the difference between its purchase cost and the manufacturer's suggested retail price of a comparably equipped vehicle not powered by natural gas.

Any credit that cannot be used in a tax year can be carried over to the next three tax years. The credit applies to business taxes imposed on corporations, air carriers, railroad companies, and utility companies. A company cannot claim the credit against more than one tax for the same expenditure.

Sales Tax Exemption

The act exempts the following from the sales and use taxes:

1. new vehicles powered exclusively by natural gas;
2. vehicle conversion equipment, as described above; and
3. CNG filling station equipment, as described above.

PA 91-248—sSB 810
Energy and Public Utilities Committee
Government Administration and Elections Committee
Appropriations Committee

AN ACT TO ENCOURAGE THE DEVELOPMENT AND IMPLEMENTATION OF ECONOMIC DEVELOPMENT PROGRAMS AND CONSERVATION AND LOAD MANAGEMENT TECHNOLOGIES

SUMMARY: This act requires the Department of Public Utility Control (DPUC) to establish new ratemaking procedures that modify the relationship between electric, gas, water, and telephone company sales and their earnings in order to promote energy conservation and other state policies. DPUC must consider the company's performance in promoting state policies in authorizing a rate of return on investments.

The act expands an existing law that entitles electric and gas companies to bonuses for their investments in conservation and load management. It allows electric companies to continue earning a return on retired generating facilities when their retirement is due to the company's compliance with state policies. It requires DPUC to disregard these retired facilities in calculating the company's excess capacity.

The act allows electric and gas companies to charge their ratepayers for marketing and promotional costs under certain circumstances. It requires the Office of Policy and Management (OPM) and other state agencies to promote conservation measures in state buildings, and it amends the state's energy policy.
EFFECTIVE DATE: Upon passage

FURTHER EXPLANATION

Changes in Ratemaking Procedures

Legislative Findings. The act states that the legislature finds that electric, gas, water, and telephone companies will be discouraged from implementing programs promoting state energy, economic development, and other policies if their participation in these programs harms their earnings. It also finds that, in order to promote these programs, earnings should be consistent with statutory ratemaking principles, even though the companies are participating in the programs.

DPUC Revision of Ratemaking Procedures. The act requires DPUC to investigate the relationship between utility company sales and earnings by December 31, 1991. It must implement ratemaking procedures and practices that encourage the implementation of conservation programs and other DPUC-approved programs that promote state energy, economic development, and other policies. These procedures must modify or eliminate the direct relationship between sales and earnings. The procedures can use a statutory provision that adjusts rates on the basis of sales or a similar method. DPUC must review its regulations and policies to identify disincentives to the development and implementation of programs promoting the state's policies.

DPUC, in consultation with OPM and the Office of Consumer Counsel (OCC), must submit proposals to the legislature by February 1, 1992. The proposals must recommend additional legislation DPUC considers necessary to encourage conservation programs and other programs promoting state energy policy and other state policies.

Performance Considerations in Ratemaking. Under prior law, DPUC authorized a company to earn a rate of return on its investments that was no more than sufficient to cover its costs, maintain its financial integrity, and attract needed capital. The act, instead, requires DPUC to authorize a rate of return within a range of reasonable rates based on the following factors:

1. the quality, reliability, and cost of the company's service;
2. the reduction or shifting of demand for electricity, gas, or water resulting from the company's conservation and load management programs that have been approved by DPUC;
3. the company's successful implementation of programs supporting economic development;
4. its success in decreasing or limiting the state's dependence on oil or meeting other criteria established in state policy; and
5. other criteria consistent with state energy policy and other policies.

DPUC can establish other performance-based incentives, either related or unrelated to the company's authorized rate of return, to implement the act and existing ratemaking principles. If a company seeks to benefit from these provisions, OCC can retain independent experts to analyze, evaluate, and testify on the appropriateness of the company's proposal. The company must pay OCC's reasonable costs up to $50,000 per proceeding. DPUC must allow the company to recover this expense from its ratepayers. It can adopt regulations to implement these provisions.

The act allows DPUC to approve electric, gas, water, and telephone company rate changes, at the company's request, in a proceeding other than a rate case in order to encourage programs that promote energy, economic development, and other state policies.

Bonus for Conservation and Load Management Programs. By law, electric and gas companies must implement conservation and load management programs. This act requires that these programs be consistent with "integrated resource planning principles." Neither the act nor existing law defines this term. In practice, it means a planning process that analyzes demand and supply simultaneously and allows entities other than utility companies to provide energy supply and conservation services.

By law, electric and gas companies are entitled to a 1% to 5% bonus on their authorized rate of return on multiyear capital investments under these programs. The act extends this provision to their expenditures treated as operating expenses.

Under the act, in order for an investment or an expenditure to receive the bonus, it must: (1) be part of a DPUC-approved program, (2) be prudently incurred, and (3) be successfully implemented. DPUC can also authorize an electric company to earn a return on its expenditures in acquiring conservation and load management services, as approved by DPUC, from an independent provider of these services.

Retired Generating Facilities

By law, when an electric company with more than 75,000 customers seeks to change its rates, DPUC must exclude from the company's rates the costs associated with the company's excess generating capacity. DPUC must consider state energy policy, among other things, in determining whether a facility represents excess capacity. The act requires DPUC to disregard the following, as it considers appropriate, in calculating the company's excess capacity:

1. reduction in the company's peak demand resulting from its conservation measures and other measures and programs undertaken by the company since January 1, 1986 to promote state energy policy;
2. the capacity of the company's share in hydroelectric and other renewable resource facilities placed in service after June 1, 1986;
3. the capacity provided to the company by "qualifying facilities" (primarily cogenerators) and resource recovery facilities placed in service after January 1, 1986;
4. any increase in the company's capacity after June 1, 1986 resulting from programs or measures under-

taken to implement state energy policy and other state policies;

5. the reduction in the company's need for reserve capacity attributable to DPUC-approved connections between New England electric companies and electric systems outside the region; and
6. other capacity adjustments DPUC considers appropriate, including those it has already recognized.

DPUC must permit the company to continue to earn a return on and depreciate its unrecovered investment in generating facilities that have been used to provide service and that are temporarily or permanently retired due to compliance with state policy. The company can earn a return on a retired facility only insofar as the retirement reflects the six factors described above. DPUC must also allow the company to recover, from ratepayers, the cost of retiring the facility and the prudently incurred ongoing costs associated with maintaining temporarily retired facilities. In making its determination concerning allowable returns on a retired facility, DPUC must consider the potential for selling the facility's capacity or the power it generates.

The act specifies that it does not affect any settlement agreement that DPUC has approved before its effective date or that arises out of a case pending on that date.

Promotional and Marketing Costs

The act repeals a law which prohibits electric and gas companies from passing to ratepayers the cost of programs designed to encourage residential customers to convert their oil heating systems to electricity or gas. This prohibition applied to company programs or plans that offer cash or billing credits or impose unreasonable costs to promote fuel switching.

Under the act, DPUC can allow electric and gas companies to promote specific end uses of electricity and gas to implement state energy policy and other policies, consistent with integrated resource planning principles and with the law limiting the companies' recovery of their advertising costs.

The act also permits gas and electric companies to recover from ratepayers their reasonable costs in promoting and marketing efficient gas and electric equipment that DPUC determines (1) is consistent with state energy policy and integrated resource planning principles, (2) provides net economic benefits to the company's customers, and (3) does not have the primary purpose of promoting one fuel over another. To benefit from this provision, a company must apply to DPUC. To the extent practicable, DPUC must determine whether the equipment meets these two criteria within 120 days of the application. The company must pay DPUC's and OCC's costs for analyses, testing, evaluation, and testimony at a public hearing or other proceeding and all other reasonable and necessary costs in administering this provision. DPUC specifies how and when these costs will be paid.

State Facilities

By law, the public works commissioner can, at an agency's request, expedite energy-saving capital projects. The act requires each agency to submit a list of its projects to the Energy and Public Utilities Committee by February 1, 1992.

By law, OPM must submit an annual report on energy projects in state buildings to the governor and the Energy and Public Utilities Committee. The act requires this report to identify any state laws or procedures, that impede innovative energy conservation projects in state buildings.

The act requires the OPM secretary, in conjunction with the Department of Public Works, to investigate the feasibility of connecting state-owned buildings to existing and proposed district heating and cooling systems. He must report his findings to the Energy and Public Utilities Committee by February 1, 1992. The report must include an engineering study of the technical feasibility of such connections, their costs, and their projected energy savings.

OPM must require each agency to maximize its use of utility company conservation and load management programs and provide sites for demonstration projects of highly energy efficient equipment in its facilities, so long as this will not impair their functioning.

The Department of Public Works must adopt regulations establishing criteria for selecting equipment for use in state buildings. The criteria must include a life-cycle analysis. By law, a life-cycle energy cost analysis calculates the total of acquiring, operating, and maintaining capital goods over their useful life. Under the act, the analysis must also consider the full cost of the energy capacity and related infrastructure associated with the type of energy the equipment uses and the risks associated with this energy source.

Other Energy Policy Changes

In reviewing electric, gas, and water company resource plans, DPUC must consider the noneconomic costs and benefits of all proposed resources, consistent with state energy policy and other policies and the principles of integrated resource planning.

State & Local Relations

STATE GOVERNMENT INITIATIVES TO PROMOTE CLEAN TRANSPORTATION FUELS

A REPORT OF THE AMERICAN GAS ASSOCIATION STATE AND LOCAL AFFAIRS SUBCOMMITTEE

Boldface indicates 1991 additions

The American Gas Association is heartened by the gathering momentum behind state government action to promote greater use of natural gas vehicles (NGVs) and other clean-fuel vehicles. The passage of the Clean Air Act Amendments of 1990 provides additional incentives for state and local governments to seriously consider the many benefits of an aggressive NGV program.

The natural gas industry is strongly committed to the development, commercialization and public acceptance of NGVs. NGVs can improve the environment by substantially reducing vehicular emissions of reactive hydrocarbons and carbon monoxide. In addition, since roughly two-thirds of all the oil consumed in the United States is used as a transportation fuel, NGVs can bolster national security -- and keep more of America's capital resources at home -- by displacing imported oil in the only major market where oil still has a monopoly.

Since 1987, individual cities and states have been leading the way in this important area. What follows is a report on significant actions to date.

Arizona: **In 1991, Chapter 176 was enacted which requires that the Director of the Department of Administration, in consultation with the State Energy Office, to implement a replacement program for fleets with vehicles that are the most fuel efficient in their class and to increase the use of alternative fuels in state-owned vehicles.**

In 1987, the Arizona Legislature enacted a law that mandates shifts to clean-fuel vehicles by certain public and private fleets in metropolitan Phoenix and Tucson. In 1988, the mandate was extended to buses, and natural gas was given a partial and temporary exemption from the state's motor fuels tax.

Arkansas: **In 1991, Act 659 creates a 9-member alternative fuels commission to coordinate and direct the alternative fuels market.**

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California: **In late 1991, the California legislature passed four bills on alternative fuels. SB 135 requires all passenger vehicles-for-hire in nonattainment areas to use alternative fuels. SB 547 provides that the ownership or operation of a facility which sells compressed natural gas at retail to the public for use only as a motor fuel does not make the corporation or person a public utility. AB 1607 allows utilities to build and recover the costs from natural gas vehicle compression stations, and natural gas vehicle conversion and maintenance facilities. AB 1338 authorizes the State Energy Resources Conservation and Development Commission to develop and submit recommendations to the legislature for the conversion of the state's university shuttle-bus system to alternative fuel.**

In September 1990, California enacted a number of measures that will help promote the use of NGVs. One law provides for tax credits for the cost of devices installed on new or used vehicles to convert them to Low Emission Vehicles. Credits are limited to $1000 per automobile and $3500 on other motor vehicles. Another law authorizes local units of government to assess emission fees to fund vehicle demonstration programs. A third law requires the Public Utilities Commission to evaluate and implement policies to promote the development of equipment and infrastructure needed to facilitate the use of NGVs and electric vehicles. The PUC must hold hearings, consider specific policies and provide the legislature with a progress report. The PUC also must sponsor workshops to address the regulation of the sale of natural gas for use in vehicles.

In September 1990, the California Air Resources Board adopted regulations for tailpipe emissions standards and test procedures for light- and medium-duty vehicles, and the distribution and availability of clean fuels. The proposal is designed to achieve the greatest possible emission reductions in the most efficient manner by spurring the development of advanced vehicle technology and allowing the use of cleaner-burning fuels. The regulations establish emission standards in four progressively more stringent categories: transitional low-emission vehicles, low-emission vehicles, ultra-low-emission vehicles and zero-emission vehicles. The phased-in production mandate for clean-fuel vehicles applies to vehicles produced for sale and use in the state of California. The hydrocarbon emission standards, expressed as non-methane organic gases (NMOG), include measurements of non-methane hydrocarbons, aldehydes, ketones, and alcohols. The NMOG will be adjusted for reactivity and starting with the 1994 model light-duty vehicle (including passenger cars) category, will have to meet a fleet average NMOG standard. A system for earning marketable credits for use in complying with fleet average standards will be established.

The Clean Air Act Amendments of 1990 include a California Pilot Program which requires, at a minimum, 150,000 clean-fuel vehicles to be produced, sold and distributed annually in 1996-98. Beginning in 1999, 300,000 such vehicles must by produced, sold and distributed annually.

In September 1989, the California legislature enacted two measures that promote the vehicular use of natural gas and other clean transportation fuels. One law provides that, until 1995, the incremental cost of any clean-fuel vehicle will be exempt from the state's 6 percent sales tax. Another law requires that, subject to vehicle availability, at least 25 percent of all newly acquired state government vehicles must have clean-fuel capability.

Colorado: A 1990 Colorado law requires that 10% of the new motor vehicles purchased or leased by state agencies during fiscal year 1991-92 operate on clean fuels. Each year thereafter through FY94-95, an additional 10% must use alternative fuels. New vehicles may be bi-fuel, and existing vehicles may be converted to reach the percentage requirements. Emergency vehicles and heavy-duty vehicles are exempt. The law also removes the sale of natural gas as a vehicle fuel from the jurisdiction of the public utilities commission.

In 1989, the Colorado Legislature enacted a law that provides a $200 rebate for any person who acquires a clean-fuel vehicle or retrofits an existing vehicle. State and municipal agencies are also eligible to receive the rebates, which are capped at five vehicles per person.

Connecticut: **In 1991, the General Assembly passed two bills related to alternative fuels. Act 91-142 directs the Commissioner of Environmental Protection to conduct a study on the adoption of California's emission standards.**

Act 91-179 establishes a 10% tax credit for any investments or expenditures relating to alternative fuel vehicles until 1993. Alternative fuel vehicle tunnel restrictions were removed. Also, effective October 1, 1991, this Act exempts from the sales tax and use tax: new vehicles that use clean alternative fuel; equipment to convert vehicles to clean alternative fuel or to dual use of a clean alternative fuel and another fuel; and, equipment incorporated into or used in compressed natural gas filling stations.

A bill aimed at global warming was passed in May 1990. Of interest in the bill is a section that prompts the Standardization Committee of the Public Works Department to "consider vehicles using alternative fuels when considering new purchases."

District of Columbia: In December 1990, the District of Columbia enacted sweeping alternative fuels legislation. The law requires government and private owners and operators of fleets of 10 or more to convert 5 percent of their vehicles to operate on clean alternative fuels each year beginning in 1993 through 2000. Reformulated gasoline is excluded from the clean alternative fuels definition.

The law also bans, effective 1998, commercial vehicles not powered by an alternative fuel from operating in the Central Employment Area (downtown area) of the District from sunrise to sunset between May 1 and September 15, the period when smog is particularly bad.

By February 15, 1992, and on October 1 of each subsequent year, each owner and operator of a commercial fleet is required to submit plans to the mayor that contain specific short- and long-range goals and timetables for the implementation of a clean alternative fuels program. Fines of up to $5000 per day for noncompliance may be levied.

Florida: **In October 1991, the governor of Florida passed Executive Order 91-253 mandating alternative fuels in state agency vehicles. By January 1, all state agencies must submit FY 92-93 budget amendments to begin use of alternatively fueled fleet vehicles in air quality nonattainment areas. By the year 2000, all possible fleet vehicles will be required to use the most efficient, least-polluting alternative fuels. Highly visible**

demonstration programs using new technologies are also mandated. The governor's office will also make changes to implement the use of alternatively fueled fleet vehicles in FY 92-93 with the goal of operating all possible fleet vehicles on alternative fuels. Florida's Energy Office, in conjunction with the Department of General Services and agency fleet managers, will develop a comprehensive state plan for alternatively fueled vehicle purchases and fueling and service infrastructure.

Hawaii: **In 1991, the legislature passed two bills related to alternative fuels. SR 154 and SCR 175 requests that the Department of Business, Economic Development and Tourism, with the Department of Accounting and General Services, determine 1) alternative motor vehicle fuels, 2) conversion costs, 3) additional purchasing costs for alternatively fueled vehicles, 4) comparative costs of fossil and alternative fuels, and 5) short- and long-term benefits of using alternative fuels.**

Iowa: **In 1991, SF 508 establishes a mandate, beginning in 1992, that at least 5% of the new state vehicles purchased shall be equipped to utilize alternative fuels, increasing to 10% in 1994. Also, alternatively fueled vehicles may be financed under the Iowa Energy Bank Program, which provides energy financing for the state, state agencies, political subdivisions, school districts, area education agencies and community colleges.**

Louisiana: **SB 537 was passed in 1991 providing a 20% income tax credit for clean burning alternatively fueled vehicles and property related to the dispensing of such fuel.**

In 1990, Louisiana enacted legislation that requires 30% of new state agency fleet vehicles to have clean-fuel capability as of September 1, 1994. The mandate increases to 50% in 1996, and could increase to 80% in 1998, pending a review of the program by the Louisiana Department of Environmental Quality.

The legislature has directed the Public Service Commission to deregulated the direct sales of natural gas by producers, pipelines, distribution companies or other persons for vehicle fuel purposes.

Maryland: The Maryland NGV Working Group, comprised of natural gas utility representatives from around the state, will have recommendations to submit to the legislature on compressed natural gas- and LNG-powered vehicles in 1992.

Massachusetts: In December 1990, Massachusetts enacted a law that will allow the Commonwealth to adopt the non-methane hydrocarbon emissions standards based on California's 1994 low-emission vehicle standards. The Massachusetts standards are to be phased in, beginning with model year 1993 vehicles, and prohibit any corporation or person from selling vehicles in the state unless they comply with the standards. In model year 2000, the hydrocarbon standard that can be met by gasoline-powered vehicles will be completely phased out.

The statute's language would allow Massachusetts to delay implementation of these standards by up to two years if the state determines that other New England states or New Jersey are unlikely to adopt the California standards. New York adopted California

standards in 1990. (see New York)

Exemptions to the program are available for certain vehicles, such as used vehicles that are sold as used vehicles in Massachusetts. Exemptions also are available for vehicles originally registered outside of Massachusetts but brought into the state because of ownership transfers pursuant to inheritance, divorce or legal separation.

Minnesota: Minnesota deregulated the sales of natural gas for resale to end-users for vehicle fuel purposes, making such sales a non-utility function. (1984)

Missouri: Passed in 1991, HB 45 sets a timetable for the conversion of government vehicle fleets to alternative fuels. Any fleet of 15 or more vehicles must convert 10% by July 1, 1996, 30% by July 1, 1998, and 50% by July 1, 2000, to be capable of burning alternative fuel. By July 1, 2002, 30% of government vehicles *must operate solely* on alternative fuels.

Nevada: AB 812 relates to clean air; requires the state environmental commission to conduct public hearings and submit a report concerning the use of alternative fuels in certain motor vehicles; requires the state environmental commission to adopt the laws of California concerning certain emmission tests for diesel vehicles.

New Mexico: In 1991, the legislature passed HM 23 which establishes the Clean Alternative Fuel Task Force.

New York: **a 1991 *New York City* ordinance requires the city to purchase 385 alternative fuel motor vehicles by June 30, 1992, and establishes a rate of purchase for alternative fuel buses.**

In Fall 1990, the New York Department of Environmental Conservation adopted California's 1993 motor vehicle emission standards and durability requirements. Beginning in 1993, 40% of passenger cars and light-duty trucks and certain medium-duty vehicles manufactured for sale in New York must meet exhaust standards of 0.25 gm/mi for hydrocarbons, 0.4 gm/mi for nitrogen oxides and 3.4 gm/mi for carbon monoxide. The percentage rises to 80% in 1994 and 100% in 1995. All emission control equipment must be certified to last 100,000 miles. As noted earlier, California has since adopted more stringent standards. New York is expected to follow suit, maintaining an equivalent program.

In August 1990, New York embarked on a six-year, $40-million state demonstration program to operate 268 cars, buses and trucks on alternative fuels. The vehicles will be purchased or retrofitted, operated throughout the state, and tested extensively for performance, durability and emissions. In addition, several fueling facilities will be built, and funding will be provided for driver and mechanic training and an information network. The vehicles operating on natural gas in the program will include buses and light- and heavy-duty trucks.

Also in August 1990, The Port Authority and the Triborough Bridge and Tunnel Authority (TBTA) jointly announced that they have opened access to their tunnels and bridges "to certain [dedicated] alternative-fueled motor vehicles that reduce air pollution."

The TBTA fully lifted its ban on bi-fuel vehicles as well.

In 1989, three state agencies issued a jointly developed New York State Energy Plan that calls for a 50% increase in natural gas use by 2008. While the plan stopped short of advocating an outright mandate for the use of clean transportation fuels, it did call for accelerated state government demonstration programs and asserted that New York State "should encourage the use of compressed natural gas as a transportation fuel".

North Carolina: **Chapter 738 requires the Energy Division of the Department of Economic and Community Development and the Department of Administration to study the use of clean transportation fuels in state-owned vehicles and to develop a demonstration project using natural gas as the fuel for state-owned vehicles.**

Oklahoma: **The "1991 Alternative Fuels Conversion Act" (HB 1193) provides for a 50% tax credit for conversion of a vehicle to liquid propane gas, liquid natural gas and compressed natural gas and for equipment used to fuel vehicles for a period of two years. The 50% tax credit is applicable from December 31, 1990 to January 1, 1993. At the end of the two-year period, the tax credit reverts back to the 20% implemented in 1990 by the legislature.**

The Office of Public Affairs currently administers the $1.5 million Oklahoma Alternative Fuels Conversion Fund. The fund will reimburse costs to any state, county, municipal or school district, up to $3500 per conversion, that voluntary converts a vehicle to compressed natural gas, LNG, propane, ethanol or electricity. The fund will also pay the costs, up to $100,000, to install fueling stations. In return, the agencies will repay the fund from the fuel savings achieved until the fund is repaid. Repayment will be suspended if the clean fuel price is not below the price of the fuel displaced by the alternative fuel.

Also, the sale of compressed natural gas, liquid natural gas, and liquid propane gas as a vehicle fuel was deregulated.

Oregon: **Enacted in 1991, SB 765 requires a certain percentage of state vehicles to be capable of using alternative fuel to the maximum extent economically possible. After July 1, 1994, the state shall acquire only alternative fuel vehicles except in areas unable to economically dispense alternative fuel.**

SB 766 requires motor vehicles, subject to the control of certain mass transit and transportation districts, to use alternative fuel to the maximum extent economically possible.

HB 2130 expands the energy conservation tax credit programs to include costs associated with acquiring and operating alternatively fueled fleet vehicles. It also permits investor-owned utilities to offer commercial and industrial customers cash to assist in the purchase of alternatively fueled fleet vehicles and fueling facilities.

HB 3344 establishes two studies. First, the Department of Transportation will study the feasibility of replacing department passenger-carrying gasoline vehicles with NGVs. The second directs the Department of Energy, in consultation with the Economic Development Department, to assess renewable fuels and cost of achieving state fuel independence.

The Oregon Department of General Services has established a demonstration program

for clean-fuel vehicles. The Salem state motor pool is operating a 2-year demonstration program using 14 bi-fuel vehicles. Thus far, the program administrators are very pleased with all aspects of the NGVs. Another 20-vehicle procurement is being considered.

Pennsylvania: In December 1989, both Houses of the Pennsylvania legislature adopted a resolution that urges Congress "to enact a meaningful mandate for phased shifts to alternative transportation fuels by a substantial number of our nation's vehicles, and to assure that any such mandate permits undistorted competition, under comparable regulatory conditions, between all transportation fuels that are substantially cleaner than oil-based products." The Pennsylvania resolution also urges Congress "to enact tax incentives for the private sector, and financial assistance incentives for the states and municipalities, in order to reduce the obstacles posed by initial capital expenditures for shifts to alternative transportation fuels."

South Dakota: In 1990, the South Dakota Legislature passed a resolution, patterned closely after the Pennsylvania resolution, that urges Congress "to enact a meaningful mandate for phased shifts to clean transportation fuels by a substantial number of our nation's vehicles." Like the Pennsylvania resolution, the South Dakota resolution also calls for federal tax incentives for the private sector, federal financial assistance incentives for states and municipalities, and federal policies that permit "undistorted competition" between clean transportation fuels.

Texas: **In 1991, the Texas legislature passed sales tax exemption status for propane and natural gas as a motor vehicle fuel.**

In May 1989, the Texas legislature enacted two laws that mandate a phased shift to clean transportation fuels by certain vehicles in nonattainment areas. The mandate covers all metropolitan buses, state agencies with fleets of over 15 vehicles and school districts with fleets of over 50 school buses. The mandate directs affected fleet operators to attain clean-fuel capability for all vehicles acquired after September 1, 1991. Retrofitting of vehicles will be necessary in the probable event that sufficient clean-fuel vehicles are not yet available directly from Original Equipment Manufacturers.

The following targets for compliance must be met:

30% of each affected fleet by September 1, 1994;
50% of each affected fleet by September 1, 1996; and
If certain findings are made by the Texas Air Control Board, 90% of each affected fleet by September 1, 1998.

The Texas Air Control Board is also empowered to set mandates for most local government fleets of over 15 vehicles --and for private fleets of over 25 vehicles.

For compliance, vehicles must have the capability to use compressed natural gas "or other alternative fuels that result in comparably lower emissions of oxides of nitrogen, volatile organic compounds, carbon monoxide, or particulates or any combination of them".

Exemptions can be obtained if refueling facilities are unavailable and/or if clean-fuel suppliers do not offer adequate financing.

Enactment of these laws followed a one-year state government demonstration program, involving 12 state government vehicles, which showed that retrofitting vehicles to natural gas led to substantial reductions in operating costs and dramatic improvements in emission levels.

Texas also passed HB 1878, which deregulates the sale of natural gas for resale to end users for vehicle purposes, making such sales a non-utility function, effective September, 1989.

Utah: **Several programs were established with HB 122 and HB 142. A Clean Fuel Private Sector Incentive Program will award monies from an annual budget of $10,000 to private sector conversions or purchases of clean-fuel vehicles. The second law established the revolving Clean Fuel Conversion Fund. An appropriation of $10,000 will be given annually. Up to $3,000 per government vehicle may be loaned out to government departments, school divisions, etc. with repayment required within seven years.**

Virginia: **In 1991, Virginia passed extensive alternative fuels legislation. SJR 206 and HJR 481 established an 18-month pilot project in Northern Virginia, Greater Metropolitan Richmond, and Hampton Roads to determine the feasibility of domestic clean fuels.**

HB 1401 prohibits the School Board from preventing the use of alternative fuels in school buses.

HJR 321 calls for each of the seven school divisions to develop plans for conversion of bus fleets to alternative fuels emphasizing compressed natural gas.

HB 1454 makes loans available from the Literary Fund to purchase alternative fuel buses, to convert buses to alternative fuels, and to build alternative fuel refueling facilities.

HJR 334 furthers the joint subcommittee on Clean Transportation Fuels through the 1992 legislative session.

SB 627 allows SCC to deregulate the sale of natural gas as a vehicle fuel on a case-by-case basis.

HJR 336 provides for the removal of tunnel restrictions on alternatively fueled vehicles.

In 1990, the Virginia General Assembly created a special joint subcommittee to study the possible use of natural gas vehicles and other clean-fuel vehicles in the state. The group is studying the emissions, economics, safety and other benefits of clean-fuel vehicles that could be purchased or leased by state agencies, school districts and local transit authorities. The subcommittee held seven hearings on clean-fuel vehicles and related issues last year, at various locations around the state.

The Virginia NGV Working Group, comprised of natural gas utility representatives from around the state, prepared a white paper to suggest options for an NGV program in Virginia. Many of the group's recommendations were included in the enacted package of legislation.

Washington: **In 1991, municipal and state legislation made significant strides in alternative fuels. King County Ordinance 9891 provides that at least 50% of the vehicles purchased in 1992 shall use alternatives fuel and at least 75% in 1993; this may include the conversion of existing vehicles.**

Ordinance 9892 waives the licensing fee from 1991-1996 for taxicabs and for-hire vehicles using alternative fuels.

Ordinance 9893 makes an appropriation of $132,500 from the Public Works Fund and Motor Pool Fund to implement the Alternative Fuels Pilot Program.

The state Clean Air Bill (HB 1028) requires 30% of vehicles purchased on state contracts to use clean fuels after July 1, 1992, increasing 5% each subsequent year. Preference will be given to dedicated clean fuel vehicles, however, conversions may be used in a one to one ratio. Also, the law finds compressed natural gas fueling infrastructure development imperative and to be in the public interest.

In 1989, the Washington legislature enacted a law requiring the state's Department of Transportation to "consider" acquiring clean-fuel vehicles where they are feasible and economically justified.

West Virginia: **SB 2 requires the Public Service Commission to develop technology demonstration programs for natural gas, methanol and electricity. Also, the sale of natural gas as a vehicle fuel by a non-utility was deregulated.**

The governor, by means of executive order, initiated a test group of state vehicles to be converted to use compressed natural gas. The executive order seeks to establish a series of natural gas refueling stations to be operational by September 30, 1991 for use by the converted vehicles.

Wisconsin: **Wisconsin received federal funding approval for a program to assist municipalities in converting their fleets to utilize alternative fuels and displace gasoline use by 85%. Qualified local governments may receive up to $30,000, or maximum of $2,000 per vehicle, under the two-year program. The Energy Department has allocated $150,000 for the program, funded by the Energy Overcharge Fund.**

Governor Tommy G. Thompson has appointed a task force composed of cabinet members to monitor a state fleet alternative fuels pilot program and to develop state policy on the use of alternative fuels.

The Northeastern States: Eight northeastern states have agreed in principle to adopt stronger auto emissions standards, equivalent to the California LEV program. The new standards would apply to model-year 1993 vehicles that enter commerce in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. The plan was drafted by the Northeast States for Coordinated Air Use Management, but each state will develop its own program. New York and Massachusetts have already done so. Maine and Rhode Island may be next in line.

State and Local Groups: A number of organizations representing state and local

governments or agencies have adopted policy statements supporting the increased use of natural gas, especially in vehicles, as a viable way to pursue America's environmental and energy security goals. Groups endorsing this policy include the National Governors Association, the National Association of State Energy Officials, the National League of Cities, the Energy Council (formally the South/West Energy Council) and the National Conference of State Legislatures. The National Association of Regulatory Utility Commissioners (NARUC) has adopted a resolution to "further encourage the development and widespread use of natural gas vehicles."

AMERICAN GAS ASSOCIATION
STATE AND LOCAL AFFAIRS SUBCOMMITTEE

KENNETH GAUDI, Manager, State Government Issues
at Peoples Natural Gas Co., CHAIRMAN

ANDY McGINN, Manager, State and Local Relations
at the American Gas Association, STAFF EXECUTIVE
703/841-8597

December 2, 1991

Session II. Marketable Permits

Pat Leyden

South Coast Marketable Permits Program:

VOC and NO_x Sources

South Coast Air Quality Management District

Diamond Bar, California

MARKETABLE PERMITS PROGRAM FOR THE SOUTH COAST AIR BASIN

by

Pat Leyden
South Coast Air Quality Management District
Diamond Bar, California

I. SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

- A. Who is the SCAQMD?
- B. SCAQMD's Jurisdiction
- C. Current Rules and Regulations

II. MARKETABLE PERMITS PROGRAM (MPP)

- A. Concept
- B. Sources Participating in the MPP
- C. Baseline Emissions

III. PERMITTING - "THE IMPLEMENTING MECHANISM"

- A. Single Source Permits
- B. Multiple Source Permits
- C. Emission Reduction Targets
- D. Annual Permit Renewals

IV. ENFORCEMENT - "THE CRITICAL ELEMENT"

- A. Compliance Tools for ROG Sources
- B. Compliance Tools for NO_x Sources
- C. Facility Audits
- D. Emissions Monitoring and Reporting Periods

V. EMISSIONS TRADING - "THE CENTERPIECE"

- A. ROG Commodity
- B. NO_x Commodity
- C. Trading System
- D. Trading Market
- E. Trading Restrictions

VI. AIR QUALITY ASSESSMENT AND SOCIO-ECONOMIC IMPACTS - "IMPLEMENTATION IMPLICATIONS FOR THE BASIN"

A. Air Quality Assessment
B. Potential Socio-Economic Impacts

VII. SCHEDULE FOR THE MPP

A. Feasibility Study
B. Recommendation to the SCAQMD's Governing Board
C. Rule Development

MARKETABLE PERMITS PROGRAM FOR THE SOUTH COAST AIR BASIN

by

Pat Leyden
South Coast Air Quality Management District
Diamond Bar, California

MARKETABLE PERMITS PROGRAM

The South Coast Air Quality Management District is studying the use of an emissions trading program as a means of achieving further emission reductions from stationary sources in the Basin in a more cost-effective manner. Stationary source emissions are currently regulated by source specific rules, which specify increasingly stringent processes and/or control technologies to achieve emission reductions. This approach has been widely successful. Emissions from almost every source category have been significantly reduced.

Although air quality goals can be met through traditional rules and regulations, employing market-based approaches may reduce compliance costs, allow greater compliance flexibility to affected sources, and can stimulate technological innovation.

PROPOSED PROGRAM DESIGN

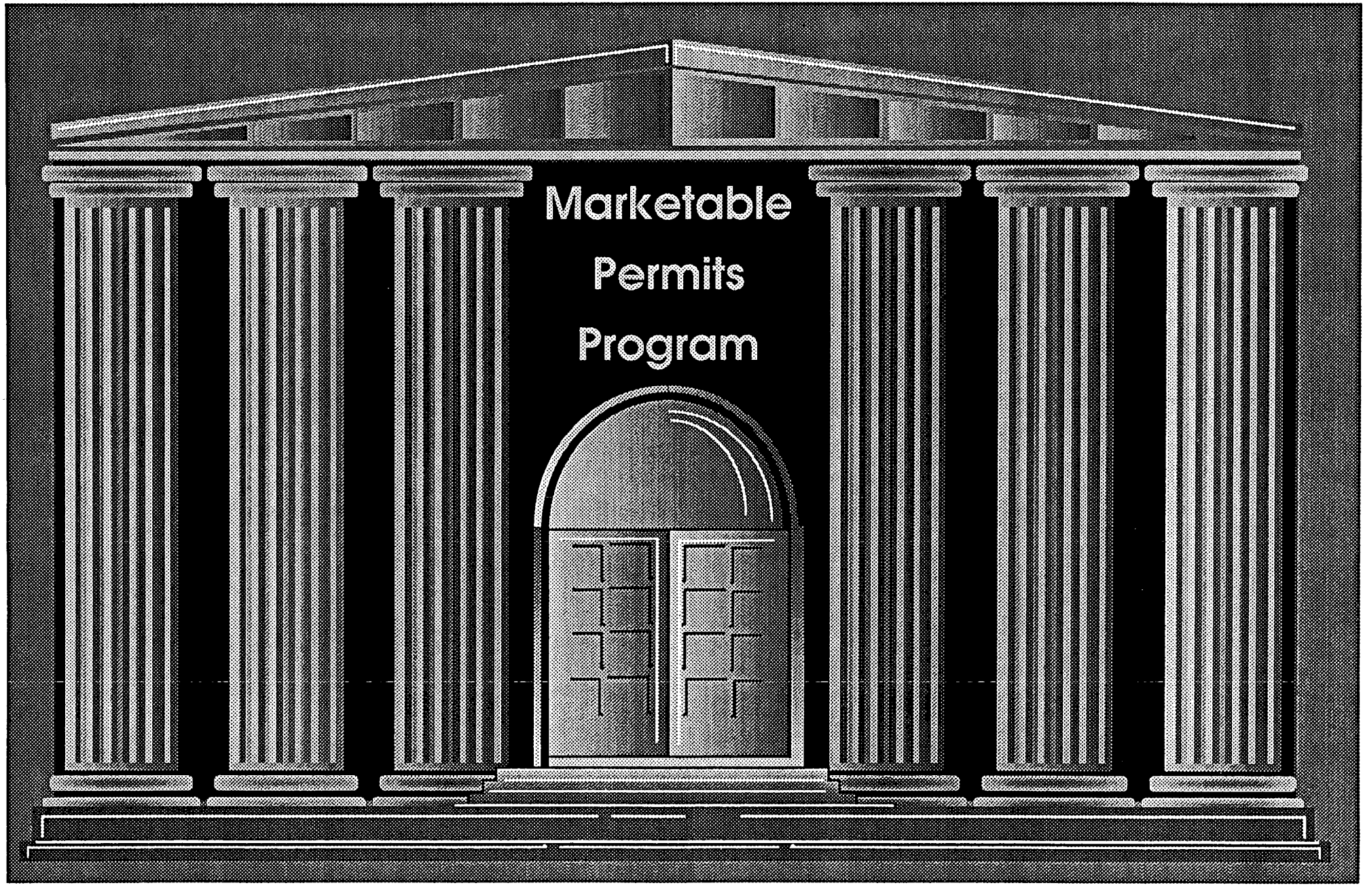
The Marketable Permits Program (MPP) is based on the concept of bubbling stationary sources at the facility level, limiting total mass emissions from the facility, and requiring the sources to meet prescribed annual facility emissions targets. The actual method of compliance would be up to the individual firm, including purchasing traded emissions, installing control equipment, using lower emitting material, or other techniques.

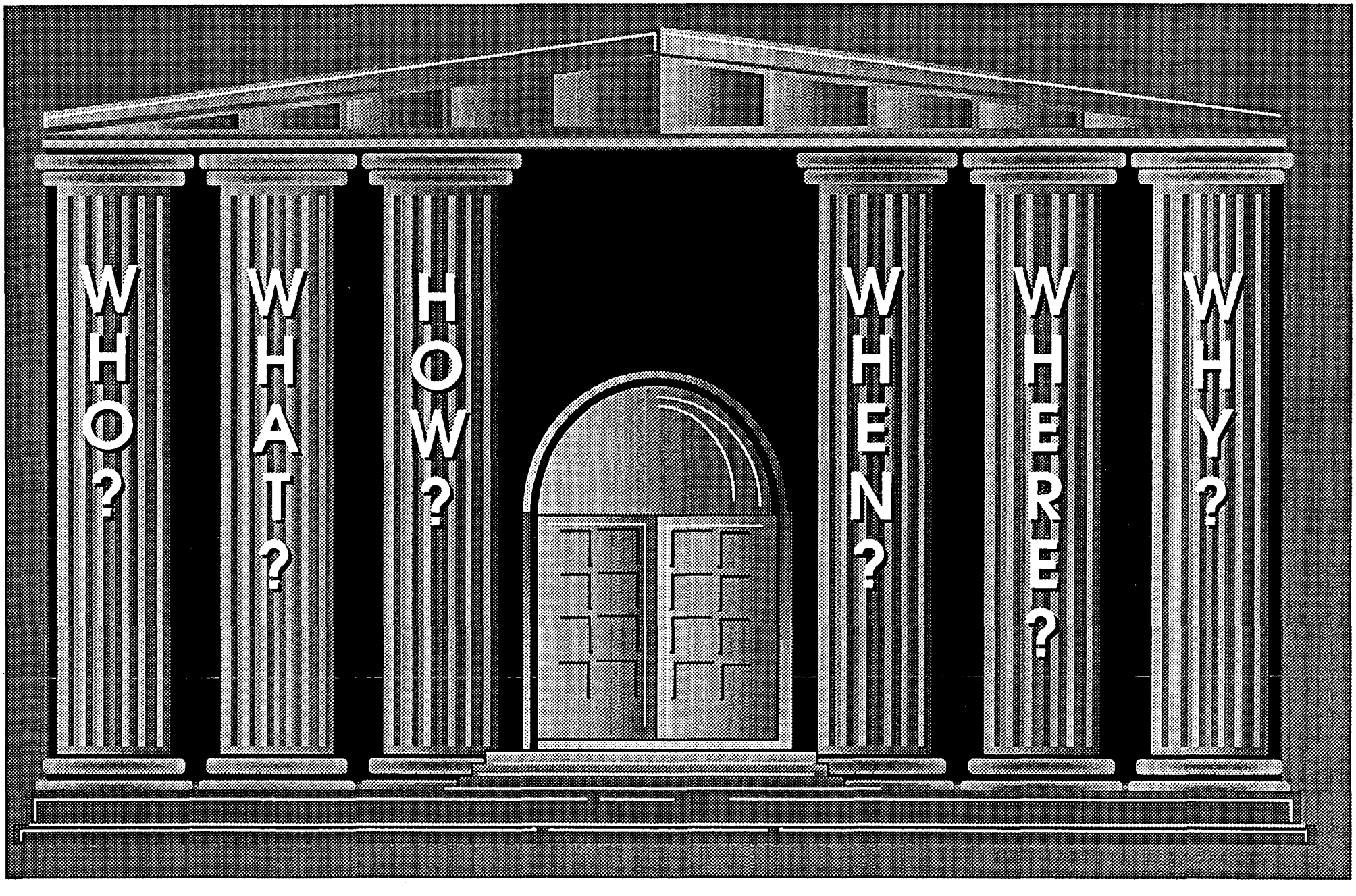
Under the MPP, facilities with one or more permitted emission sources would be allocated baseline emissions for ROG and NO_x based on recent historical emission levels. Each year, sources would be required to meet annual emission targets that would decline from the initial baseline emission allocation approximately 5 percent for ROG, and 7 to 8 percent for NO_x.

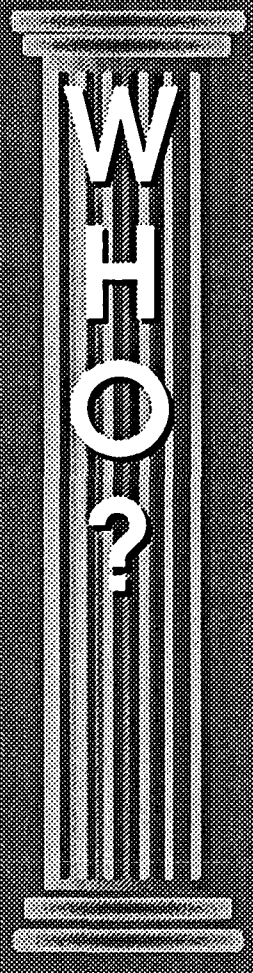
STATUS

The District is currently conducting a year-long feasibility study for the MPP which will conclude in early 1992. A series of working papers are being developed to address key policy and technical issues. To date, five working papers for the feasibility study have been completed. A broad-based Advisory Committee has been working to develop recommendations for the MPP.

In March 1992, District staff will report to the Governing Board seeking a recommendation regarding rule development. If the Board approves, a series of rules will be developed to implement the MPP.


Marketable
Permits
Program

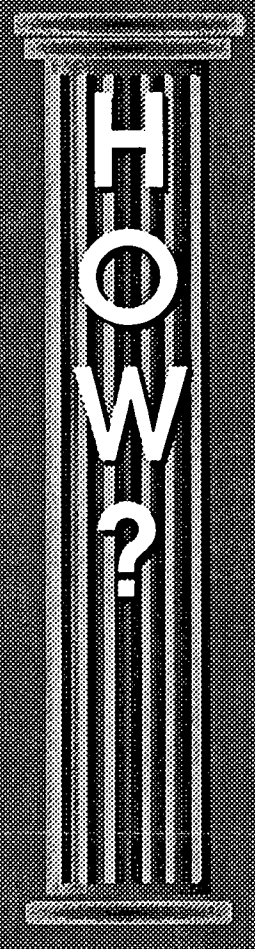

WHO?
WHAT?
HOW?
WHEN?
WHERE?
WHY?



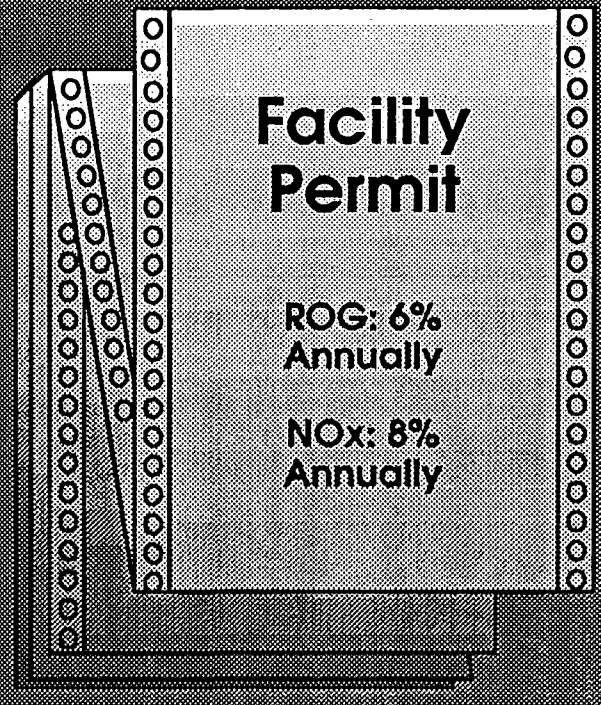
- All District Permitted Facilities (24,000)
- Possible Exemptions
- Mobile Sources ?

WHAT?

- NO_x
- ROG
- No Toxics



- Facilities Emission Caps (Actual Emissions 89 - 91)
- Annual Rates of Reduction (6% ROG, 8% NO_x)
- Increased Monitoring
- Annual Permit Emissions Program (APEP)



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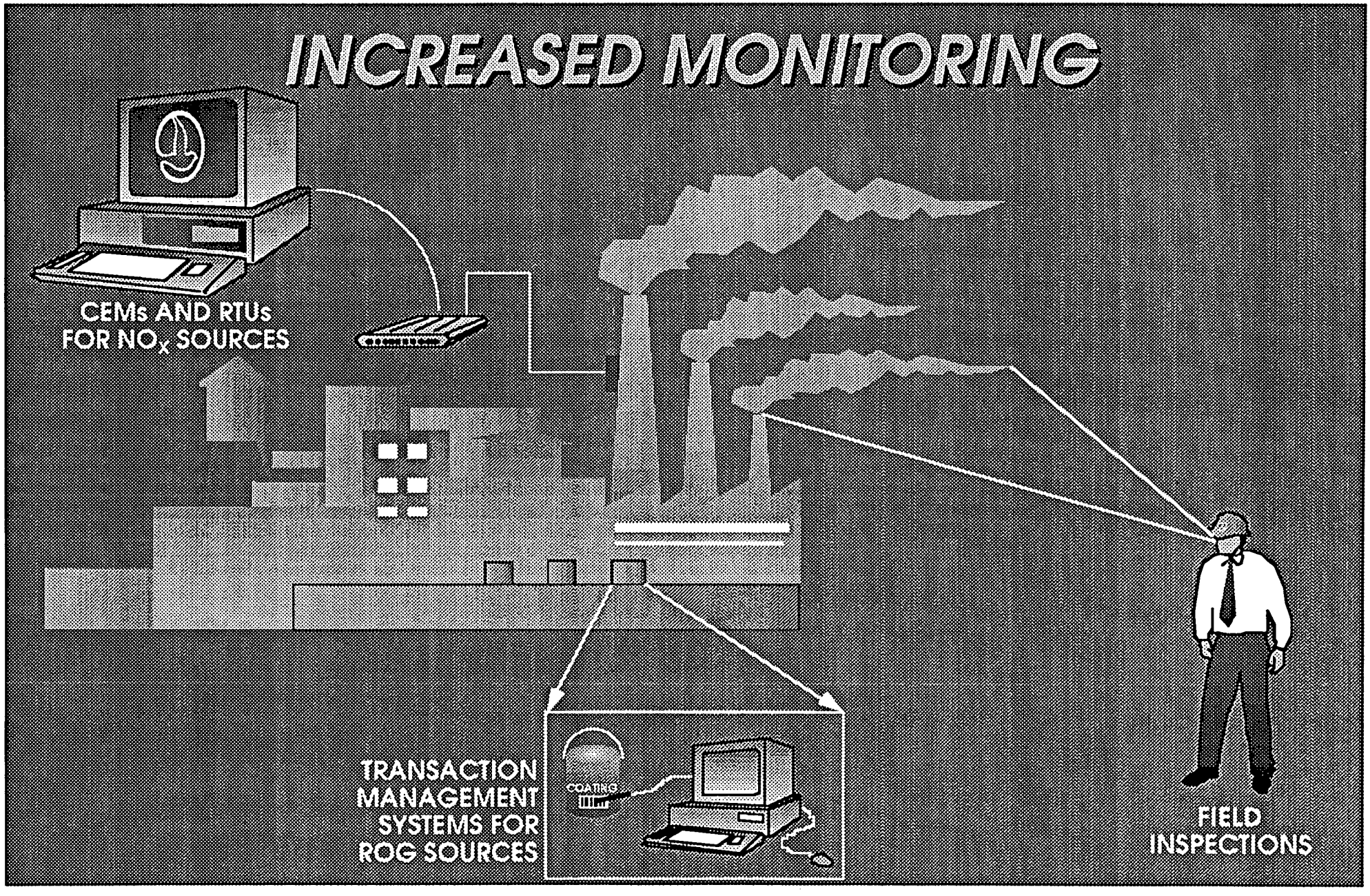
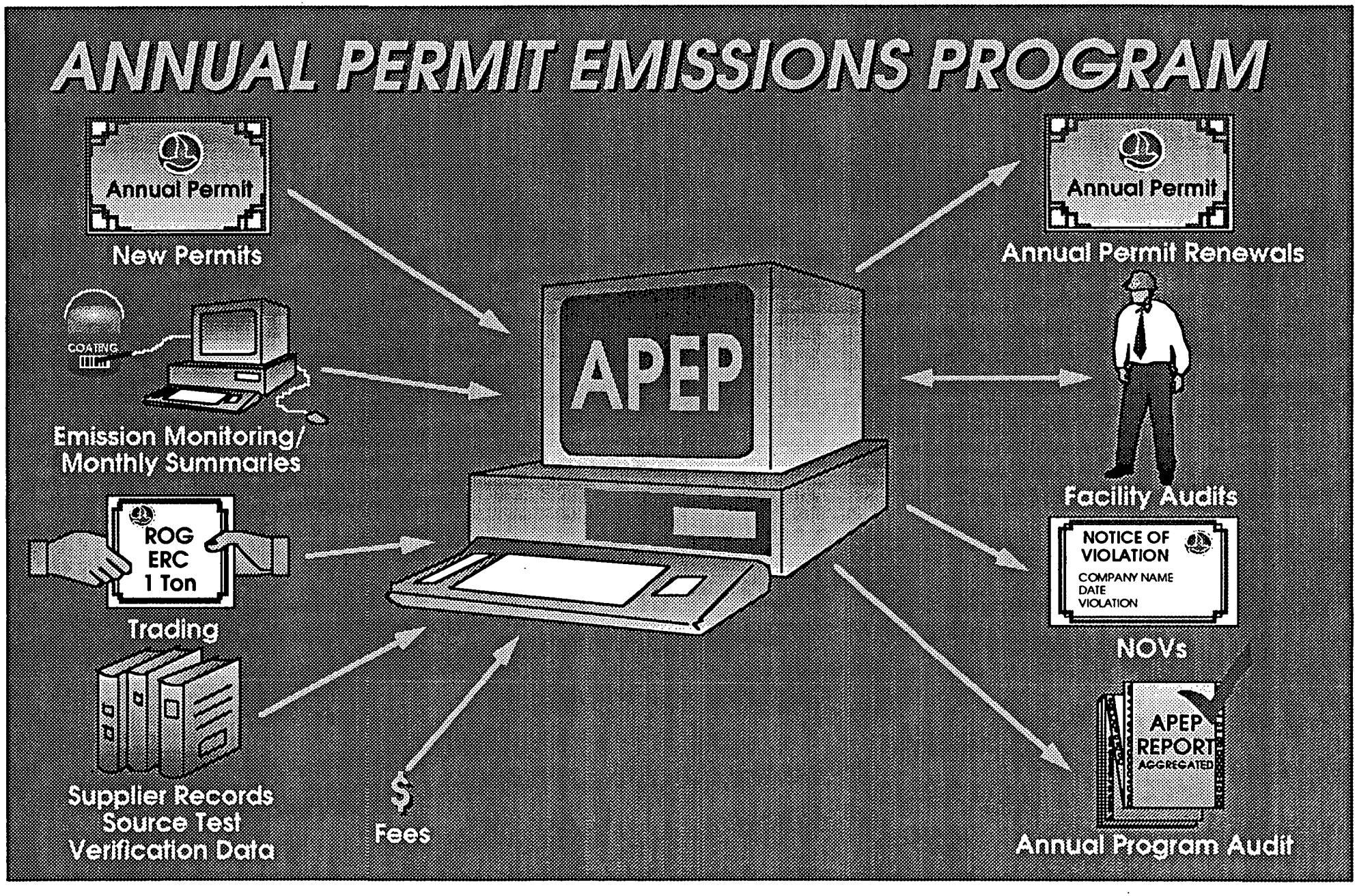
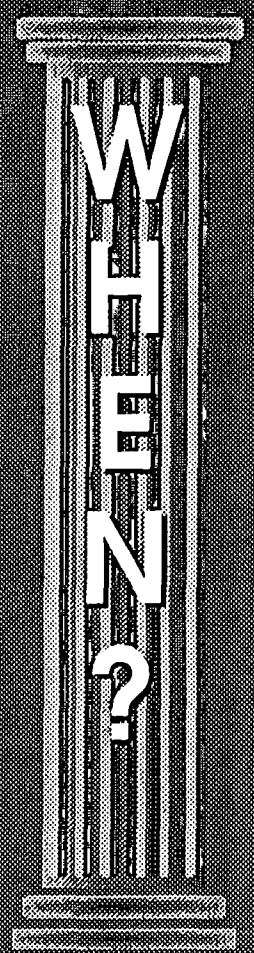
- Emission Cap
- Annual Rate of Reduction
- Monthly/Quarterly Limits
- Monitoring Requirements

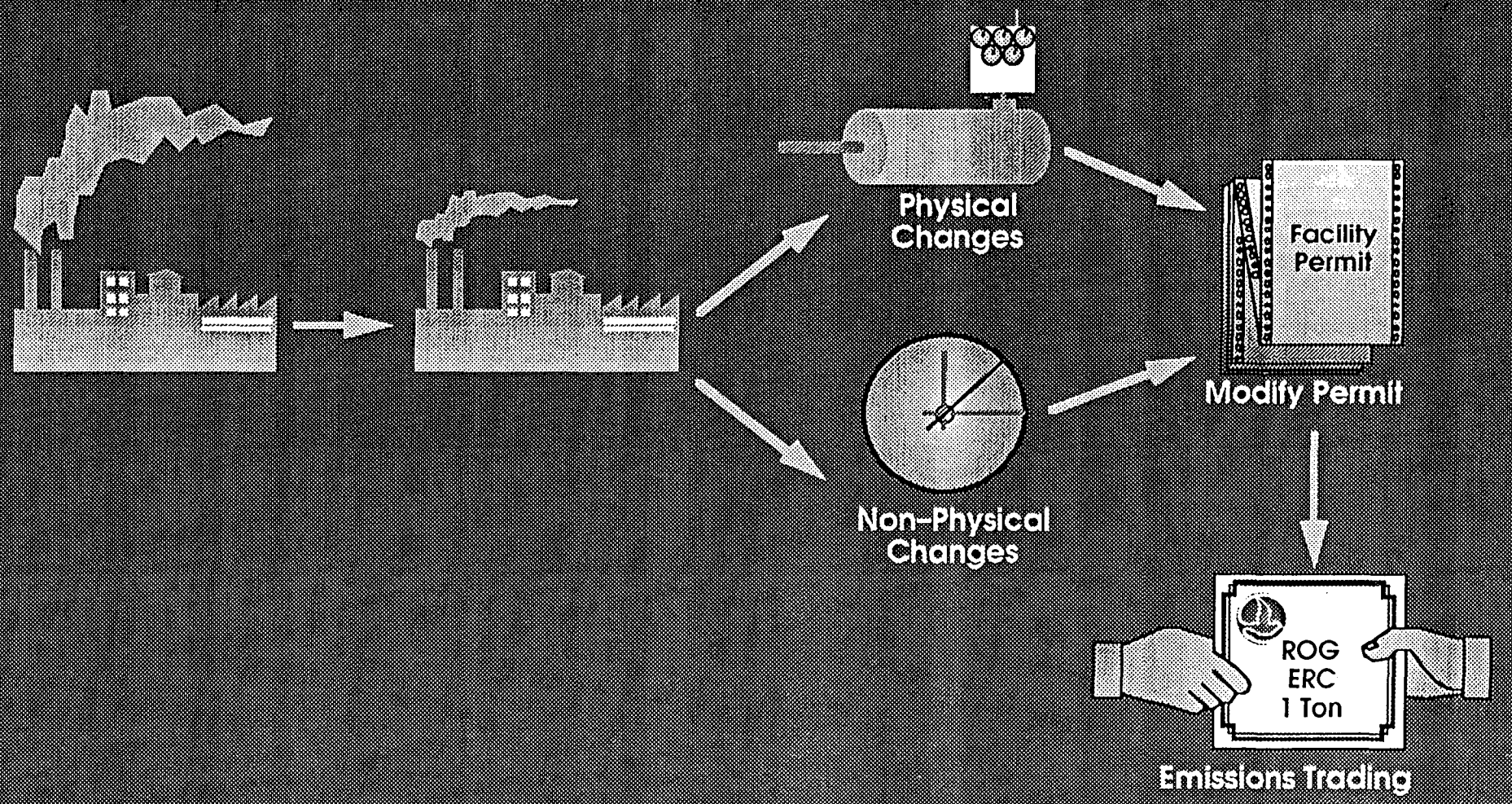

INCREASED MONITORING
CEMs AND RTUs
FOR NO_x SOURCES
TRANSACTION
MANAGEMENT
SYSTEMS FOR
ROG SOURCES
COATING
FIELD
INSPECTIONS

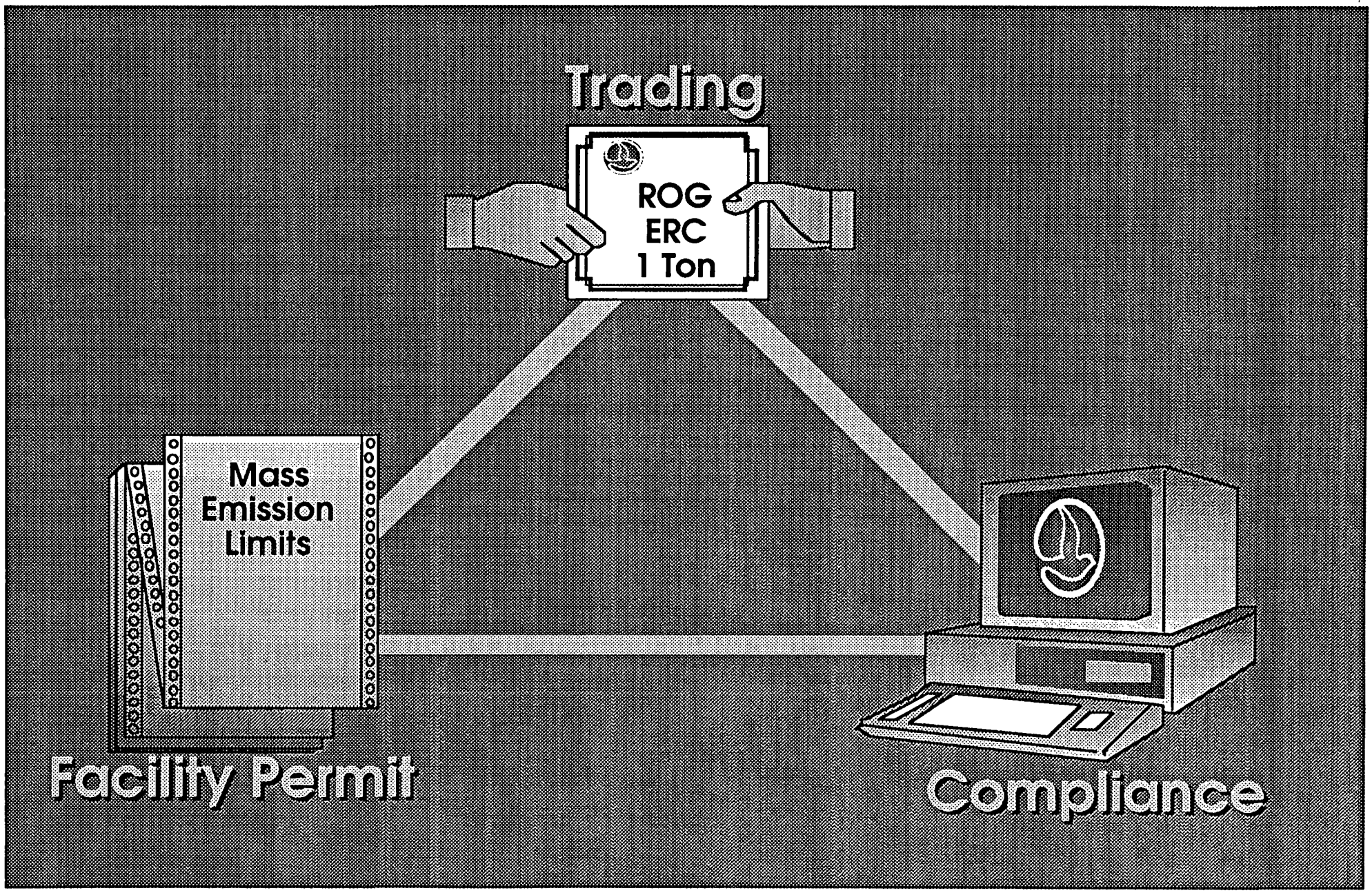

ANNUAL PERMIT EMISSIONS PROGRAM
Annual Permit
New Permits
COATING
Emission Monitoring/
Monthly Summaries
ROG
ERC
1 Ton
Trading
Supplier Records
Source Test
Verification Data
$
Fees
APEP
Annual Permit
Annual Permit Renewals
Facility Audits
NOTICE OF
VIOLATION
COMPANY NAME
DATE
VIOLATION
NOVs
APEP
REPORT
AGGREGATED
Annual Program Audit



- Emission Reductions are Traded
- No Pre-Approval of Trades
- Reductions Used in Month/ Quarter of Occurrence
- Use of Credits Requires Permit Amendment

EMISSION REDUCTION CREDIT TRADING




Trading
ROG
ERC
1 Ton
Mass
Emission
Limits
Facility Permit
Compliance

WHERE?

- Geography
- Seasons

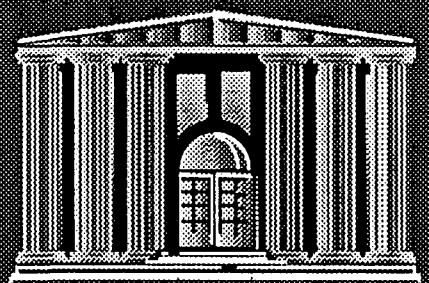
- Accelerated Emission Reductions
- Lower Costs
- Improved Public Health

IMPACT ANALYSIS

Trading By Source

Regional Economic Effects

Air Quality Impacts

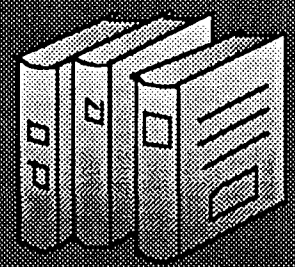


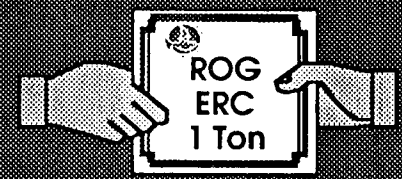
BACKSTOP - 2 LEVELS

Facility
- Penalties
- Increased Emission Reductions

Program
- Annual Audit
  - Regional Emissions
  - Costs/Jobs
  - Public Health
- 3 Year Audit
  - Technology Advancement
- Sunset Clause

SCHEDULE





Rule Adoption

April
1991

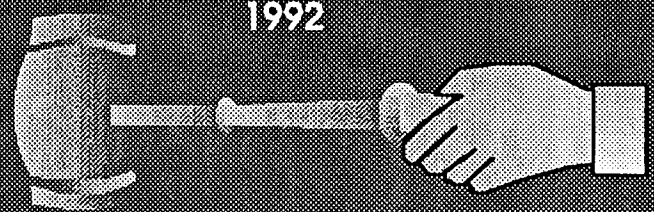
Feasibility Study

Feb
1992

Rule Development

Jan
1993

March
1992



Recommendation to
the District's
Governing Board for
Rule Development

Marijke Bekken

Locomotive Emissions Trading

California Air Resources Board

Sacramento, California

Locomotive Emissions Trading

Marijke Bekken
California Air Resources Board

In 1988, the California Clean Air Act was passed, requiring that the California Air Resources Board (ARB or Board) consider the adoption of emission regulations for currently unregulated mobile sources, including locomotives. Pursuant to that mandate, a market-based plan to reduce locomotive emissions is being developed. It is composed of an emissions cap, which declines over time, coupled with marketable emission permits. The permitted levels would be based on a determination of the percent control believed reasonable and achievable, or on the overall emission reductions necessary to achieve California air quality standards. Emission reductions beyond those required for a given company would result in emission credits, which could be sold.

Concerns about the locomotive strategy focus on growth and enforcement issues, especially the incorporation of growth in the railroad industry, growth in passenger corridors, market shifts between trucking and rail, and market shifts within the rail industry. Verification and enforcement of the emissions cap are major issues, especially the cost and administration technicalities. These issues will be fully resolved as the strategy undergoes further development.

Locomotive Emissions Trading

Marijke Bekken
California Air Resources Board

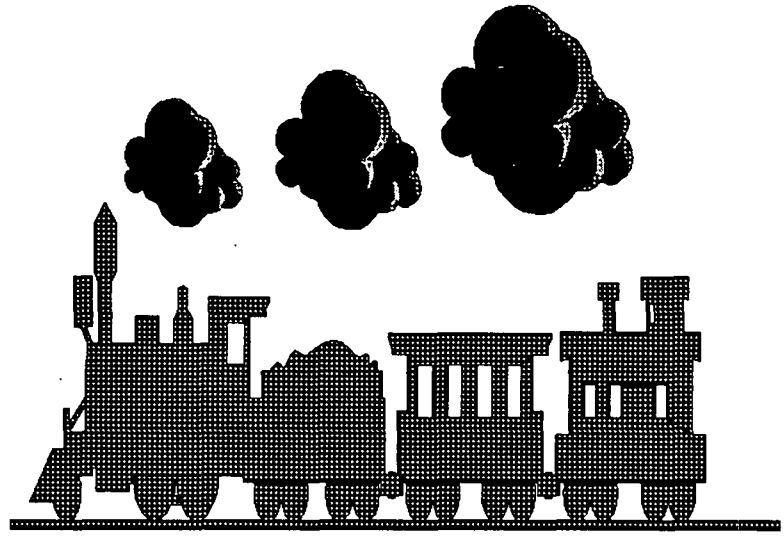
1. Legislative mandate to reduce emissions

2. Brief background of the railroad industry
   a. Locomotive fleet
   b. Locomotive service types
   c. Locomotive emissions

3. Regulatory options
   a. Locomotive emission standards
   b. Engine modifications/operational limits
   c. Market-based control strategy

4. The market-based control strategy under development
   a. Baseline emissions
   b. Company averages
   c. Reduction goals
   d. Emissions trading
   e. Enforcement and verification
   f. Advantages and disadvantages of a market-based control strategy for the railroad industry

A REGULATORY PLAN FOR THE CONTROL OF LOCOMOTIVE EMISSIONS



Innovative Regulatory Strategies Workshop
January 15-17, 1992

Overview

- Background
- Regulatory Options
- Market-Based Control Strategy
  - Emissions accounting
  - Emissions reporting
  - Emissions trading
- Recommendation

Legislation

- California Clean Air Act, 1988
  - consider locomotive regulations
- Federal Clean Air Act, 1990
  - preempts "new" locomotives

Locomotive Fleet

- 20,000 locomotives in the U.S. fleet
- 500–600 new locomotives sold annually
- 90% are owned by major railroads

Types of Locomotive Service

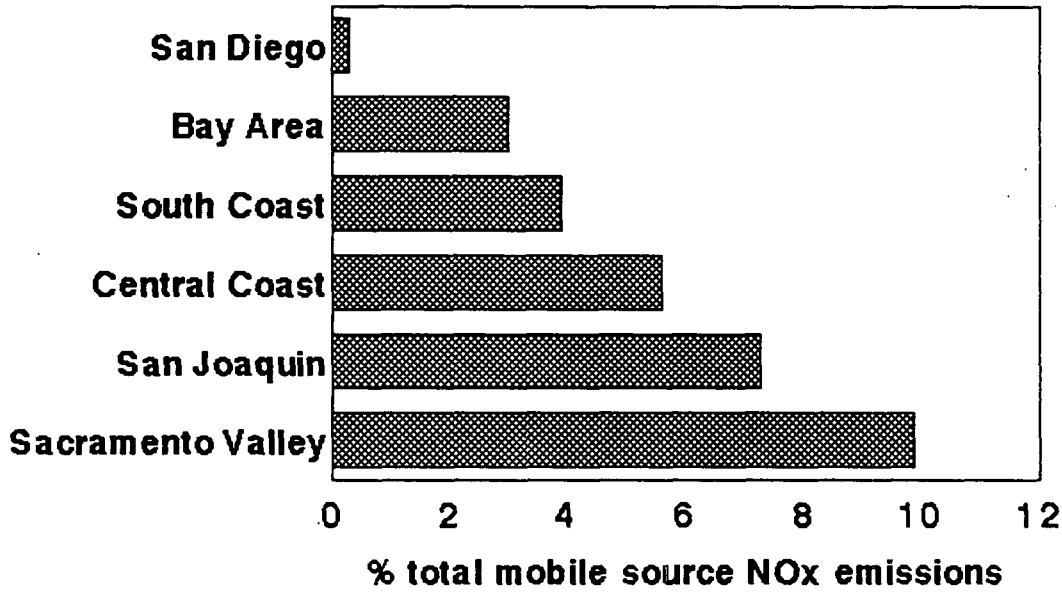
- Local
- Yard/Switch
- Line Haul
- Passenger

Locomotive Engines

- Medium speed diesel engines
- Rebuilt every 4 years
- Improvements can be retrofitted
- Engine drives electric generators
  Wheels driven by electric motors
- Little transient operation

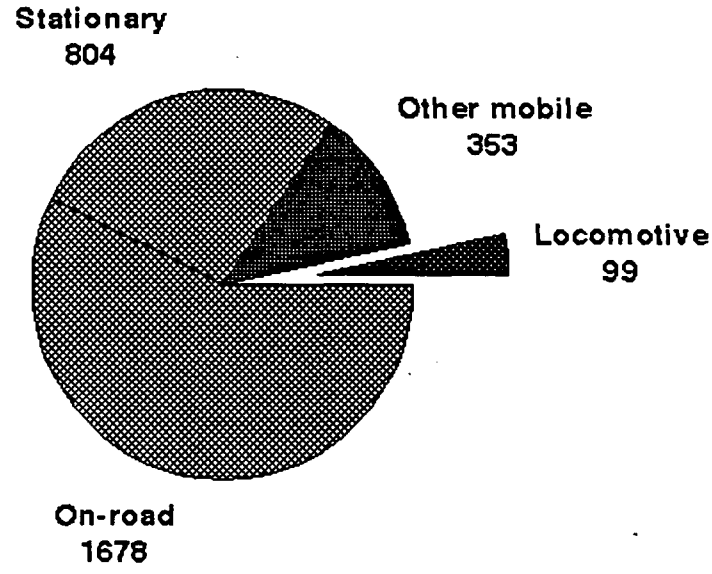
Locomotive NOx Emissions

by basin



Average, 6 basins, 4.7%

California NOx Inventory



1987 emissions data

Regulatory Options

- Market Based Control Strategy
- New Engine Emission Standards (preempted, CAA)
- In-Use Engine Modifications and Operational Limits

Market Based Control

An emissions control strategy where total emissions from a number of sources are limited, but emissions from individual sources can vary

Market Based Control
(MBC)

- Emissions cap, declining over time
- Marketable emission permits

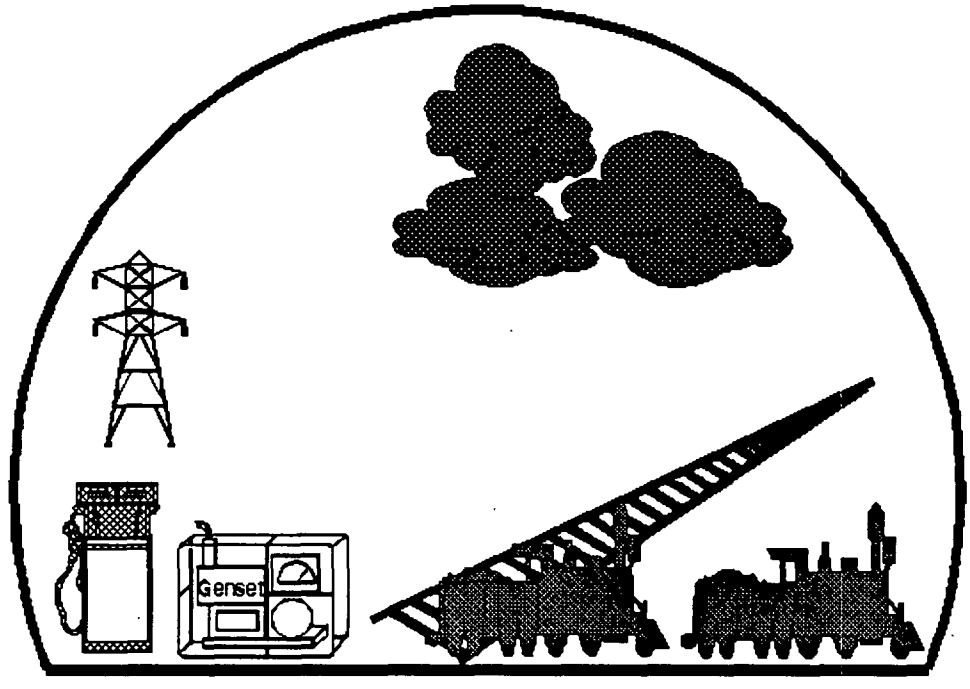
Proposed MBC Strategy

- Baseline emissions
- Company averages
- Emission reduction goals
- Emission credit trading

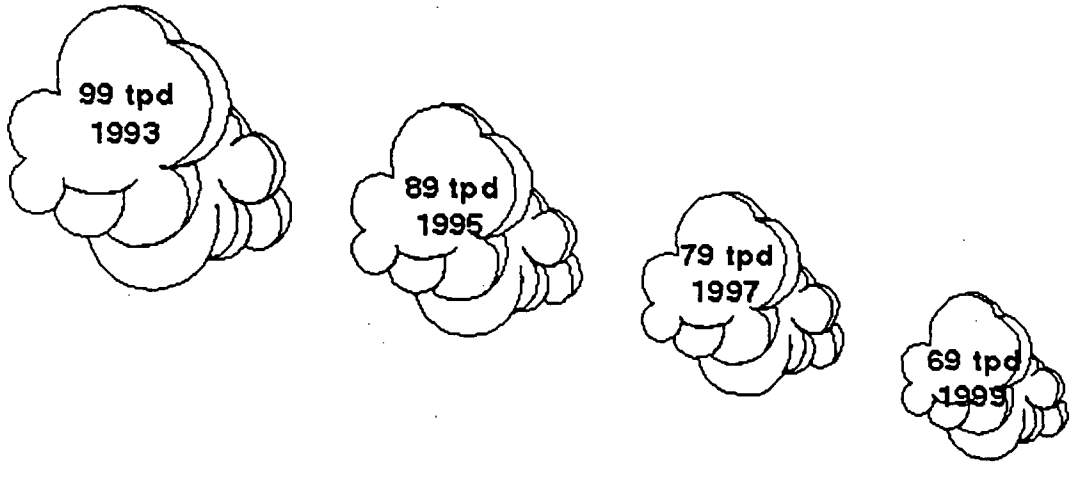
Baseline Emissions

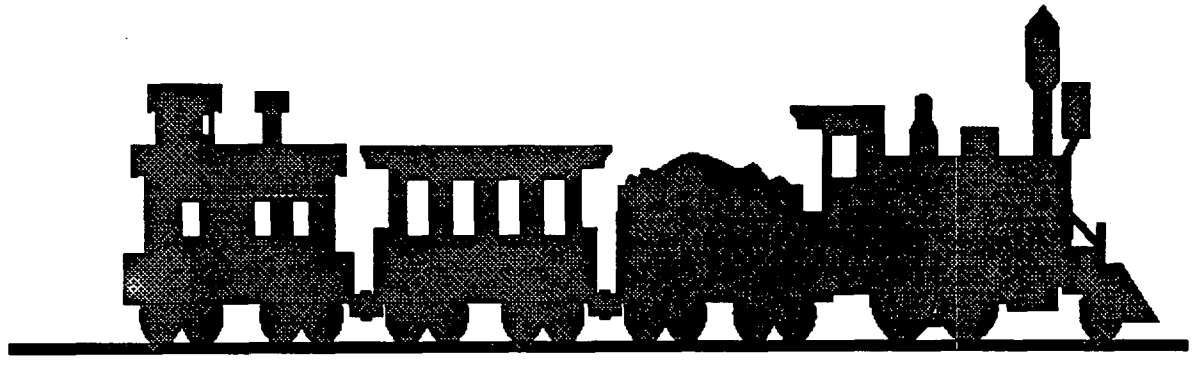
- 1987 emissions inventory
- Company allocations based on ton–miles
- Adjustment of the baseline for growth

A Company Bubble



NOx Reductions





Emissions Trading

- Reductions must be verifiable ("real")
- Emissions accounting
- Emissions reporting
- Specific trading rules

Emissions Accounting

- Locomotive logs (black box)
- Emission estimation formulas
- Verification based on fuel use

Emissions Reporting

- Seasonal reporting of emissions
- Annual reporting of emissions
- Reports accompanying proposed trades

Trading Rules

- Emission reductions must be met
- Same air basin only
- Only reductions after base year count
- ARB enforces reductions and trades

Enforcement

- Emission factors to estimate reductions
- Inspections
- Noncompliance penalties

Market Based Control

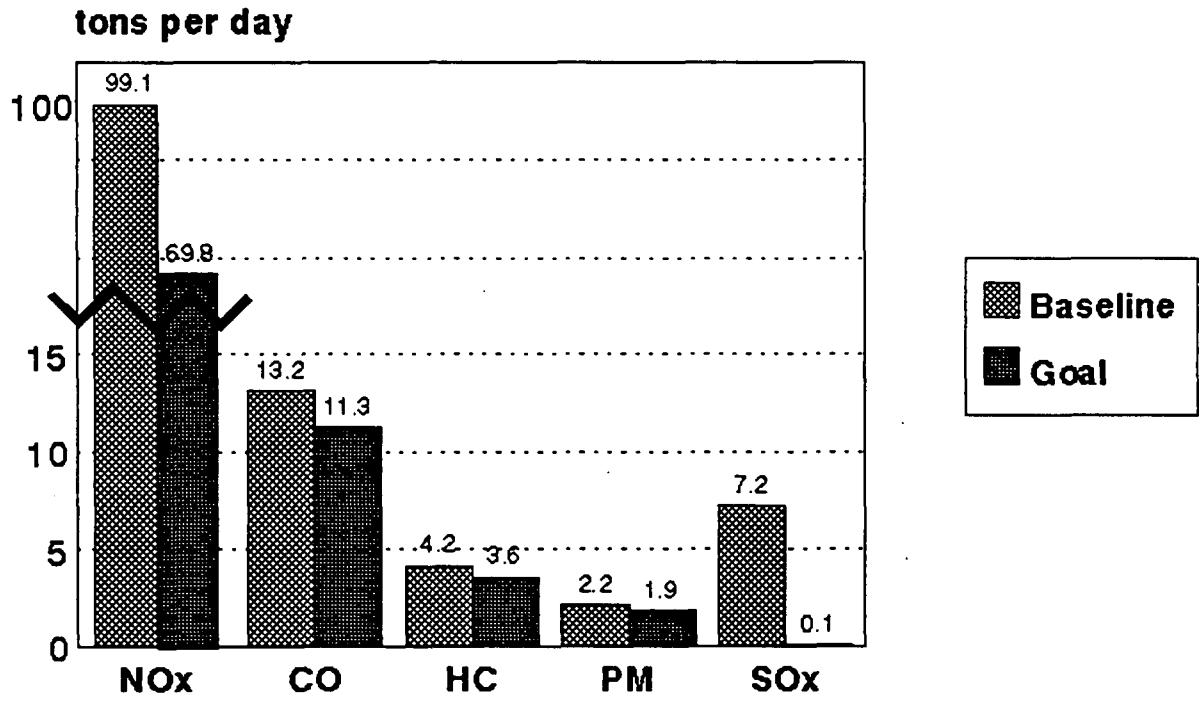
Advantages

- Incentives -> maximum reductions
- Increased flexibility -> lower cost
- New technologies developed

Market Based Control
Concerns

- Accommodating industry growth
- Accommodating market shifts
- Verification of emission reductions
- Higher administrative costs

Emission Reductions
from 1987 levels



Recommendation

- Locomotives contribute significantly to California's emissions inventory.
- Control of locomotive emissions is necessary and achievable.
- MBC strategies provide flexibility and incentives to achieve emission goals.
- Staff plans to develop regulations and return in Fall, 1992.

Nicholas Kirsch

(Former Chairman of Telluride Environmental Commission)

Wood Stove/Fireplace Marketable Permit Program

Telluride Transit Company

Telluride, Colorado

SUMMARY OF THE WOOD STOVE/FIREPLACE MARKETABLE PERMITS PROGRAM

by

Nicholas Kirsch
Telluride Transit Company
Telluride, Colorado

I. HISTORICAL BACKGROUND

A. Description of Air Quality Problem

1. Inversions

a. Meteorology/Geography

b. Growth impacts

c. Solid fuel and vehicular contributors

B. Early Attempts to Quantify and Control

1. TSP Monitoring 1975

a. One solid fuel burning device per structure in new construction, 1977

C. Recent/More Comprehensive Approaches

1. 1985 Moratorium on New Solid Fuel Burning Devices -- Surveys

2. Implementation of Ordinance and its Components

a. Solid fuel device caps, permits, rebates, retrofit requirements, low interest loans, public education, public reaction, etc.

D. Two-for-One Build Down Permit Program

1. Deed Restrictions and Marketable Permits

2. Administration of Program

SUMMARY OF THE WOOD STOVE/FIREPLACE MARKETABLE PERMITS PROGRAM

by

Nicholas Kirsch
Telluride Transit Company
Telluride, Colorado

Telluride, Colorado is a small alpine community resort (pop. 1000) situated in a box canyon at an altitude of 9000 feet. The local meteorology and geography combine to produce low, tight inversions during the winter months, trapping particulate matter from solid fuel and vehicular sources.

The town council, advised by the EPA that it was in frequent violation of then proposed federal PM_{10} standards, charged the Telluride Environmental Commission with the task of designing a strategy to effectively address the problem. Since 1987, when the strategy was fully implemented, daily monitoring has not indicated a violation of either the 24-hour or annual PM_{10} standard. Nicholas Kirsch has been closely involved with the program since its inception, and will describe elements of Telluride's approach in bringing the area into attainment of federal standards.

Session III: Other Innovative Strategies

Ray Bishop

Free Bus Ride/Voluntary No Drive Day

Tulsa City/County Health Department

Tulsa, Oklahoma

TULSA'S OZONE ALERT PROGRAM

ABSTRACT

In November of 1990 Tulsa, County, Oklahoma was declared in attainment for Ozone and removed from the Environmental Protection Agency (EPA) "Dirty Air List". On June 24, 1991 two of the three Ozone monitoring sites recorded Ozone values above the EPA standard of .12 parts per million.

Excursions this early in the year meant a high probability of violating the Ozone standard and being put back on the dirty air list. The Indian Nations Council of Government, City and County Government Officials, the Chamber of Commerce, local business leaders and the Health Department formulated and implemented the following actions:

The Health Department developed an Ozone predictive model using historical Ozone data and National Weather Service meteorological forecasts. Using the model, Ozone "alert" days were determined and declared at 4:00 p.m. the previous day. This allowed time for the media to broadcast the information and seek public cooperation and action.

The alert triggered free bus rides for everyone, requests from all mass media to either: carpool, ride the bus, bicycle, to drive the newest and "cleanest" vehicle available, or postpone any unnecessary driving. In addition drivers were requested to avoid fueling vehicles during alert days.

All gasoline marketers in the County agreed to voluntarily lower the vapor pressure of product sold from 9.5 Reid Vapor Pressure (RVP) to 8.5 RVP.

The actions taken were successful. Four "alerts" were called with Ozone values reaching .116, .109, .10 and .09 PPM but the Ozone standard was not exceeded again.

TULSA'S OZONE ALERT PROGRAM
OUTLINE

I. Historical Perspective:

- A. Violations
- B. Sources
- C. Best available control technology implemented
- D. Improved air quality
- E. Attainment

II. Summer of 1991

- A. June 24th excursions
- B. Response to concern:
  1. committee
  2. industry meetings
  3. model
  4. community actions
     - a. bus
     - b. people
     - c. oil companies
     - d. media
- C. Results:
  1. avoided exceedances
  2. free rides
  3. model
  4. public acceptance

III. Model Success

- A. Four "alerts" called
- B. Public awareness procedures
- C. Close calls
- D. Public cooperation

IV. Plans for 1992

- A. Lower "alert" value
- B. Free emissions check
- C. Alternate fuels
- D. Continued Tulsa City-County Health Department, INCOG, City, County cooperation

Lynn Sonntag

Media Educational Programs to Encourage Emission Reduction

The Walt Disney Company

Los Angeles, California

MEDIA AND EDUCATIONAL PROGRAMS TO ENCOURAGE EMISSION REDUCTION

Presentation Outline

by

Lynn Sonntag
Senior Counsel
The Walt Disney Company

I. INTRODUCTION

Public Education is a prerequisite to achieving clean air through behavioral change strategies. These strategies include market induced emissions reductions for stationary and area sources as well as newly proposed transportation control measures.

II. PUBLIC EDUCATION IS EFFECTIVE IN CHANGING BEHAVIOR

A. 1991 Southern California Water Conservation Campaign

B. Voluntary Corporate Environmental Programs (Disney's Environmentality Program)

C. Media Evaluation Criteria Sets Guidelines

1. Sixteen Second Rule

2. Target Audience Concerns

III. EDUCATIONAL PROGRAMS CAN SATISFY EMISSIONS CREDIT REQUIREMENTS

A. Stationary Source Innovative Offset Bank

1. Bank Contains Real, Permanent, Quantifiable, Surplus and Enforceable Emissions Reduction Credits ("ERC's").

2. ERC's from Bank to Be Awarded on Media Based Criteria.

B. Transportation Control Measure Emissions Credit Requirements as Applied to Patron Education Programs

IV. CONCLUSION

MEDIA AND EDUCATIONAL PROGRAMS TO ENCOURAGE EMISSION REDUCTION

Presentation Summary

by

Lynn Sonntag
Senior Counsel
The Walt Disney Company

State implementation plans now target behavioral changes necessary to reduce regional air emissions, especially in serious and extreme non-attainment areas . Proposed transportation control measures are a clear example of air quality measures requiring behavioral change. These control measures will succeed only if a target group is persuaded to alter its customary practices in furtherance of cleaner air. Disney proposes a program for air districts to award air quality credit as an incentive for creating educational and media programs aimed at persuading target audiences to make desired behavioral changes.

This presentation discusses the need for and effectiveness of public education in achieving behavioral changes. Further discussion will focus on designing air quality education programs to allow emissions credit awards under EPA guidelines for both stationary sources and mobile source transportation control measures.

Sarah Siwek

Employer Based Trip Reduction Programs

LA County Transportation Commission

Los Angeles, California

EMPLOYER BASED TRIP REDUCTION PROGRAMS:

THE SOUTHERN CALIFORNIA EXPERIENCE

SARAH J. SIWEK

DIRECTOR, TRANSPORTATION DEMAND MANAGEMENT

JANUARY, 1992

Good morning and thank you for inviting me here today to speak to you about the Regulation XV program and Southern California's experience with Employer Based Trip Reduction Programs.

I would like to begin by puttinng our air quality and transportation problems in perspective. As most of you are aware, Los Angeles and the South Coast Air Basin has the worst air quality in the United States and more specifically, has the dubious distinction of being the only extreme non-attainment area for criteria pollutants for which there are Federal Ambient Air Qualtiy Standards.

This four county region has about 13 million people residing in it and approximately 7.5 million work trips are made each day. A whopping 88% of our carbon monoxide emissions come from motor vehicle sources andd all totaled, more than 60% of our total emissions combined come from mobile sources. Our air quality problem is clearly a health problem and I'd like to share with you some of the increasingly well documented evidence of this fact.

Kaye Kilburn, a University of Southern California (USC) researcher, found that children raised in the South Coast Air Basin already had 10 to 15 percent less lung function by the time they were in the second grade than children growing up in Houston, which has lower levels of smog;

Dr. Russell P. Sheridan, a USC pathologist studied autopsy results of 100 young accident and homicide victims from Los Angeles, and determined that over 80 percent showed evidence of lung tissue damage, and 27 percent had actual lesions on their lungs;

An 11-year-long study performed by a team from the University of California at Los Angeles (UCLA) confirmed that chronic exposure to smog damages lungs, leaving victims more vulnerable to respiratory diseases such as emphysema. Losses of up to 75 percent of lung capacity were documented;

Finally, an Environmental Protection Agency study by the Argonne National Laboratory strongly suggests that long-term exposure to ozone causes irreversible lung scarring and other damage, which can reduce life spans.

Given the weight of medical and scientific evidence, the Governing Board of the South Coast Air Quality Management District (SCAQMD) adopted Regulation XV to reduce commuting vehicle trips. The Regulation was adopted in December 1987 and implementation began in July 1988, but I would say that in earnest; implementation began in late 1989. I will discuss this in greater detail later in my presentation. The Regulation

applies to all employers who have more than 100 persons employed at a single worksite. This includes public and private employers.

The performance measure is Average Vehicle Ridership (AVR), which simply put means the number of employee trips to the worksite between 6 and 10 a.m. Monday through Friday divided by the number of vehicle trips during the same period. The target AVR varies within the Basin with downtown Los Angeles employers having a 1.75 AVR, most of the Basin has a 1.5. AVR target, and the far outlying reaches of the Basin haves a 1.3 AVR target.

This 1.5 AVR is required pursuant to the California Clean Air Act and by 1999 all commute trips are to have a 1.5 AVR with no net increases in vehicular emissions after 1997. Many of you will notice the similarity between Regulation XV and the guidance that EPA is publishing regarding the Employer Trip Reduction requirements of the Federal Clean Air Act of 1990.

Now I would like to discuss some of the requirements of the Regulation XV program. Each year an employer must submit a plan to the AQMD which includes various components and an annual performancee measure of AVR which is calculated through a survey of all employees who report between 6 and 10 a.m. at the worksite. A 75% response rate is required of these employees as we want the employer to get an accurate assessment of how his employees commute and what it would take to get them to change their commute mode. Further, because we require a 75% response rate for the survey to be valid and all surveys not returned between 75 % and 100% are counted as drive-alones, it provides an incentive for the employer to get the highest return rate possible on the survey.

Each worksite must have an on-site Employee Transportation Coordinator (ETC). This person must complete an AQMD certified training course of 20 hours in the first year and an 8 hour refresher course each year thereafter. UMTA released a study on trip reduction programs in 1990 and it demonstrated, among other things, that programs with an on-site ETC were more effective than programs without an on-site coordinator.

The development of the trip reduction program begins with the survey results. The ETC evaluates the survey and also conducts a site analysis to determine which strategies might work best given the conditions at the site and the availability of options to driving alone. The survey also tells how many trips must be reduced each day in order to attain the target AVR. The ETC then develops the strategies that will be utilized at that site and includes them in the plan. In a few moments I will review some examples of strategies for you.

Additional requirements are that the employer must implement the plan which the AQMD approves. Failure to attain the target is not, to date, a violation of the Regulation; failure to try is. A management commitment letter must be included in each plan from the CEO or the highest ranking person on site. We also have some evidance, albeit anecdotal at this point, on the importance of management commitment to the program and its relationship to success.

The AQMD has extraordinary authority under State law and as is the case with all of our Regulations, we have the authority to fine a company in violation up to $25,000 per day of violation. We have the authority to asses both criminal and civil penalties. I must emphasize though, as of October 1991, with over 7000 companies in the program, fewer than 100 penalties had been levied and none anywhere near the $25,000 per day range.

Rather, we have focused on creative settlements. Examples would be Super Shuttle, a major airport shuttle operation who settled with the AQMD by agreeing to convert their fleet to propane fueled vehicles within three years and the first 25 vehicles within 1 year. This company pumps over 175,000 gallons of gasoline into the air each month so this was obviously a preferable way to settle this case than simply fining the company.

I have been frequently asked whether there is any benefit to pooling resources among companies. The answer to that question is definitely yes and Transportaiton Management Organizations and Associations are an ideal way to do this. Employment centers are another way. Keep in mind though, that the accountability rests with the employer under our program as we must demonstrate to the California Air Resources Board and they in turn to the EPA that the program is enforceable.

I also believe that education is very important. This effort is a long term one and the more educating of the public that can be accomplished, the better.

I know you are interested in knowing what strategies work best. I will begin by telling you that if we or anyone else had the magic formula we would have been using it by now. Research on the Regulation XV program continues and I am sure that within a short period of time there will be more definitive information on this subject. However, in the meantime, I will give you examples of what companies have been doing and what appears to be working best.

First of all, we do have evidence that combinations of strategies work better than a single incentive or two. In fact, a UCLA graduate student did a study of the program which

showed that companies with seven or more incentives in their program were more effective than only one or two. The point here is that you need something for everyone in your program. Just as each site is different, each employee is different and has different needs in commuting. The key is to make options available and make them more attractive than driving alone.

A typical program might include: carpool subsidies, vanpool formation and subsidies, transit passes either free or subsidized, alternative work week programs, particularly compressed work weeks and telecommuting programs. Parking management programs including charging solo drivers for parking are becoming more popular as time goes by and companies don't attain their target in the first year. Marketing strategies such as raffles, give aways, rewards for non-solo drivers, rewards to participants who rideshare or use transit most often, interdivisonal competitions, free bicycles, and running shoes.

Also Guaranteed Ride programs seem to be an important incentive. This is primarily a psychological incentive in that research shows that these programs are infrequently used but very important to getting employees to even try ridesharing or vanpooling or transit. Finally, in the Regulation XV program we give a company credit if they use clean fueled vehicles and allow those vehilces to be used by employees in commuting.

Now I will provide you with an overview of three companies programs which have been successful. First of all, the Nabisco Brands Company in Buena Park, Orange County. They employ 454 people and they are a baked goods manufacturer. They have regular frequent raffles for employees who rideshare, lottery tickets, savings bonds, dinners, Las Vegas trips, limousine trips, car services, merchandise giveaways, etc. They have a free bicycle program, free weekly lunches, and a computerized on-site rideshare matching system. In addition they have a parking management program with prioirty for carpoolers.

TRW, a high-technology firm with 200 employees in San Clemente has an alternative work hour program, a vanpool program which they subsidy to stabilize cost for employees, a 100% subsidy for vanpoolers for the first three months, and a $25 finders fee for new vanpoolers. They have a frequent rider program with incentive payments, a guaranteed ride home program and on-site rideshare matching.

The Brunswick Corporation in Cost Mesa, an aerospace manufacturer with 293 employees, has a compresed work week, flexible starting and ending hours for ridesharers, and an incentive program worth $15 to $25 per month and on-site services such as check cashing, notary public, travel agency, shoe repair, postal services, and dry cleaners.

What can we all learn from California and what mistakes can you avoid? First and foremost, have an implementation plan before the effective date of implementation. This is critical and the reason that I stated earlier that while our program was slated to be implemented in summer 1988, which did occur, we really did not have a plan and the capacity to begin implementation until late 1989. For example, how are you going to notify companies that they need to comply? I suggest that you not take this burden on but include in the legislation or ordinance that it is their reposnsiblity to come forward. Identify who they are. We did not know who the companies with 100 or more employees were and had to find ways to identify them.

Consider the training needs and requirements. How are you going to certify consultants to train? What are the requirements? What are the standards? How are you going to manage the process? The data collected? Do you need a computerized system to track programs and prgress? All these elements and many more should be thought through early on so that you can be clear to the commmunity on requirements and develop equitable standards for implementation and accountability.

Don't rush to judgement on results. We are trying to change human behavior here and it is going to take time. Work with employers, without their support and cooperation, the program will fail. We developed industry groups so that we could address the needs of various industries consistently and so that they could share information amongst themselves about how to deal with the requirements given their operations. Examples are: the airline industry, the sales and services industry, the grocers, retailers, hospitals, colleges.

Keep exemptions to a minimum. In our program there are no exemptions. Don't make the rule industry specific. I believe that the program will unravel quickly if you make differnt rules for different industries. Rather, try to work with them to develop ideas and strategies that will be effective and that they can embrace. And finally, be fair and equitable. Understand that an enormous region like ours includes a very diverse community of businesses and public sector operations. Work within the constraints but push the envelope, if you will.

Use the TMAs and TMOs to help move the program along and to provide the expertise needed to the business community to implement the program.

Understand multi-site employers and their needs. Over 45% of all our sites in South Coast Air Basin are owned or operated by multi-site employers. Be specific about what you want. Try to reach CEO's early and often. You need their support. Get the support of labor interests by allowing them to be a part of program development.

Now I will share with you some early results of the program. Seventy-one companies were studied by UCLA/USC researchers and this study is continuing. For the first full year of the program these 71 companies went from a 1.22 AVR to a 1.3 AVR. They reduced 81,224 work trips and 35 tons of pollutants. Had they attained the 1.5 AVR target, they would have reduced 226,252 worktrips and over 100 tons of pollutants. So, while progress is not as quick as many would like, it is occuring and recent information on over 800 companies further reinforces these numbers.

In closing, let me say that Regulation XV is but one program. There are thirty or so trip reduction ordinances being implemented at this time and you should look at what the others are doing in addition to Regulation XV. This program and programs like it will take time to work. This is a behavior change we are seeking to achieve and it will take time. Be open to ideas and try to be flexible given your mandate. Work with the transportation community. Institutions exist that might be best equipped to manage these programs. Transportation agencies could expand their role to that of mobility agencies and increase ridership on transit systems while implementing less traditional forms of transit, like vanpooling, to support these types of programs.

Thank you again for inviting me to speak.

Terrence Larson

SCRAP (Old Car Buy Back Program)

Unocal

Los Angeles, California

A CLEAN-AIR INITIATIVE FROM UNOCAL

PROBLEM: L.A.'S POLLUTED AIR

On most days, the people of Los Angeles breathe the dirtiest air of any community in America. As the city's battle with smog enters its fifth decade, increasing attention has focused on mobile sources of pollution — automobiles, trucks, and buses — as key contributors to the region's air quality problem.

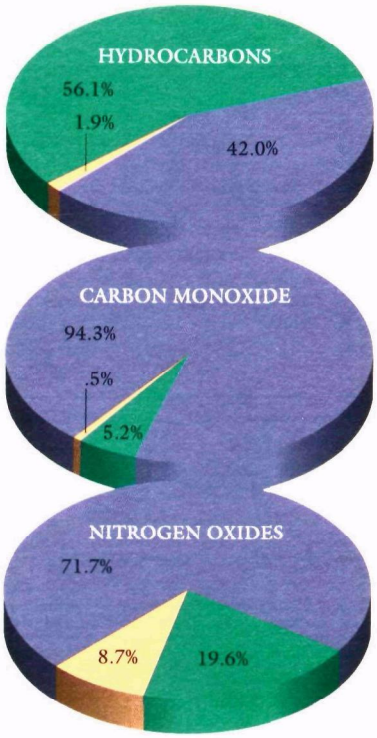
Mobile sources account for about 60 percent of all ozone-precursor emissions (hydrocarbons and nitrogen oxides) in the Los Angeles Basin. Petroleum refineries and electric power plants account for about 5 percent. Other sources (some of which have yet to be regulated) such as dry cleaners, bakeries, and even private homes make up the difference *(Figure 1)*.

Regulatory agencies and private industry have made excellent progress over the years in reducing emissions from large stationary sources. Progress has also been made on mobile sources. In fact, there have been no Stage III smog alerts in the Los Angeles Basin for 20 years, and no Stage II alerts for 6 years. Nonetheless, much more can still be done. While technology has sharply reduced emissions from the tail pipes of late-model automobiles and trucks, nearly 400,000 pre-1971 vehicles — all of which have little or no pollution control equipment — continue to operate on Southern California's streets and freeways.

Mile for mile, these old cars are the worst polluters on the road. Although pre-1971 vehicles are a serious source of air pollution — accounting for about 15 percent of all emissions from mobile sources in the L.A. Basin — little has been done about them. Retrofitting these old cars with up-to-date pollution control systems would cost more than many of them are worth.

Figure 1

SOURCES OF EMISSIONS



- MOBILE SOURCES
- REFINERIES & POWER PLANTS
- OTHER STATIONARY SOURCES

Unocal's innovative SCRAP program was launched on June 1, 1990.

UNOCAL'S ANSWER

In mid-1990, Unocal proposed a new approach to the problem. The company announced a demonstration program to eliminate several thousand of these vehicles through a voluntary purchase plan in which Unocal would pay $700 for each car, then turn it over to a

scrap yard to be crushed and recycled.

The benefits of the program would be quick and cost effective — a relatively simple but highly efficient method to improve air quality in a hurry. If successful, it could also encourage other companies to develop their own innovative approaches to improving environmental quality.

Unocal's South Coast Recycled Auto Project — SCRAP, for short — started with a budget of $5 million, enough to purchase and scrap 7,000 cars. The company estimated that taking this many pre-1971 vehicles out of circulation would cut L.A.'s air pollution by about 6 million pounds in the first year alone. SCRAP actually did a lot better than that. For one thing, other people soon joined the effort — more than 100 individuals, plus major firms like Ford Motor Company and Cypress Semiconductor, and regulatory agencies like the South Coast Air Quality Management District (SCAQMD). All contributed additional money for the program, raising the fund to nearly $6 million. Another 1,400 cars could be retired, cutting air pollution that much more.

The average SCRAP vehicle emitted more than 1,500 pounds of pollutants a year — roughly the weight of its scrap metal content.

Figure 2

But the biggest surprise was the final tally on exhaust emissions actually eliminated. Unocal tested the tail pipe emissions of every old car purchased for SCRAP. Early results suggested that these vehicles were far dirtier than air quality models had predicted. As a result, Unocal arranged to have rigorous emissions tests performed on 74 cars selected at random from the SCRAP vehicles. The results were eye-opening: On a per-mile basis, the average hydrocarbon (HC) emissions of the sample group were triple our expectations, and carbon monoxide (CO) was double *(Figure 2)*. Only in emissions of nitrogen oxides (NOx) did cars in the sample group prove "cleaner" than expected, although they were still 11 times dirtier than a 1990 vehicle.

Unocal's SCRAP program actually removed nearly 13 million pounds of pollutants from Southern California's air, or twice as much as projected when the program was launched. From an emissions standpoint, this was the equivalent of removing about 150,000 brand-new cars from the roads.

We also learned that SCRAP vehicles were driven on average 5,500 miles per year or about 90 percent as far as average old cars. Thus,

SCRAP vehicles were driven somewhat less than average but emitted far more pollution than expected.

These pre-1971 cars were among the least energy-efficient vehicles on the road, averaging 12 miles per gallon in city driving, about half the fuel economy of 1990 cars. In fact, had the SCRAP vehicles been sold as 1990 model-year cars, they would have been subject to an average "Gas Guzzler Tax" of $2,500 each!

MAKING IT WORK

On the face of it, buying and destroying 8,400 old cars in a community with nearly 6 million vehicles doesn't seem all that difficult. But SCRAP planners had to deal with several pressing issues before the program could begin.

First of all, what would the owners of such cars do for transportation once their vehicles were scrapped? Would $700 be enough to buy a replacement car? Unocal surveyed the used car market in Southern California and learned that, indeed, many post-1975 cars were priced below $700. What's more, these autos were equipped with smog controls, so that replacement transportation would be not only affordable, but cleaner as well.

Second, Unocal wanted to be sure the cars purchased for SCRAP were in running condition and registered in the Los Angeles Basin for at least six months. In short, SCRAP vehicles had to be part of L.A.'s air quality problem, not someplace else's.

Finally, Unocal had to find a way to speed up the administrative process of scrapping the vehicles. Ordinarily, it takes five to ten days for a scrap yard to complete the paperwork before a car can be legally crushed and shredded in Southern California. With 100 to 150 cars going through the SCRAP program each day, such delays would have required a huge parking area in which to hold the vehicles while they were being processed.

Recognizing the potential value of the SCRAP program, the Department of Motor Vehicles assigned special personnel to the project. These individuals handled the paperwork right at Hugo Neu-Proler's Down-

Unocal Begins Scrapping Older Cars For $700 Each

Unocal started scrapping older vehicles in the Los Angeles area in early June on its way to buying 7,000 of them to improve air quality by getting rid of some of the worst polluters.

The company is paying $700 per vehicle, which is proving to be a very attractive offer to holders of 1970 and older vehicles. As the program began, nearly 6,000 owners of qualifying vehicles had already made ap-

Top: An attendant conducts an emissions test on a SCRAP vehicle; bottom: Old cars are checked in at the scrap yard.

town Los Angeles Metal Center, where the cars were crushed, cutting processing time down from several days to a few minutes.

SCRAP TAKES OFF

With these questions resolved, the program was announced in late April of 1990, and Unocal began taking phone calls on May 2. The response was immediate. More than 3,000 calls were received the first day, and within two days 1,500 old cars were registered in the program. Eventually, appointments were made to scrap nearly 8,400 vehicles, and at times the waiting list grew to 2,000.

Unocal made it as easy as possible for qualified car owners to turn in their vehicles. Each caller was given a date and time to bring in the car. Checks to the sellers were then pre-printed. If the cars were delivered as promised, and the other conditions were met, the $700 checks were handed over at once. The company made a special effort to avoid scrapping classic cars and other valuable vehicles.

A few owners found it difficult parting with cars that had been with them for decades. Others pocketed their checks and walked away smiling. Some changed their minds and failed to keep their appointments at the scrap yard.

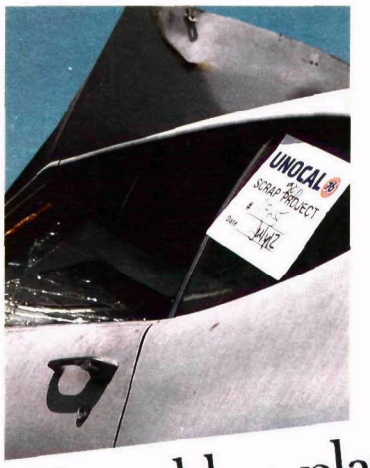
MEASURING THE RESULTS

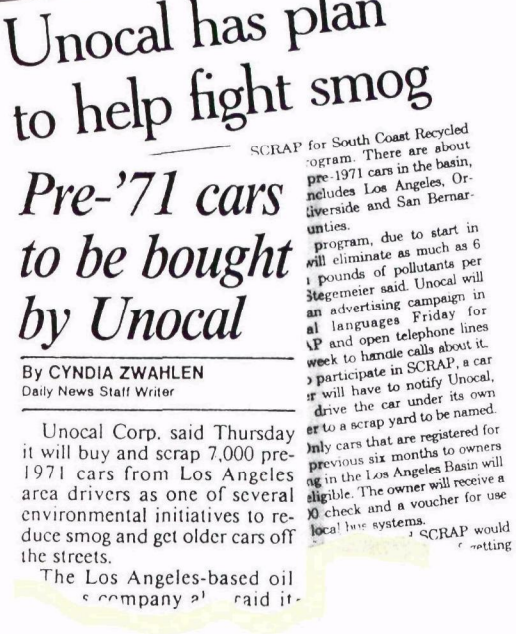
Just how dirty were the tail pipe emissions of the 8,376 cars that went through SCRAP? As Unocal launched the program, it was known that pre-1971 cars contribute a disproportionate share of air pollution to the L.A. Basin (*Figure 3*). California Air Resources Board (CARB) data led the company to expect the typical pre-1971 car to pollute 15

Figure 3

FLEET PROFILE: L.A. AREA

	PRE '71	ALL CARS	% OF TOTAL
Number Cars, 1000s	380	6,000	6
Number Miles, Millions	2,280	73,278	3
HC, Tons Per Day	57	266	22
CO, Tons Per Day	345	2,275	15
NOx, Tons Per Day	30	234	13





Unocal has plan to help fight smog

Pre-'71 cars to be bought by Unocal

By CYNDIA ZWAHLEN
Daily News Staff Writer

Unocal Corp. said Thursday it will buy and scrap 7,000 pre-1971 cars from Los Angeles area drivers as one of several environmental initiatives to reduce smog and get older cars off the streets.

The Los Angeles-based oil

SCRAP for South Coast Recycled ogram. There are about pre-1971 cars in the basin, ncludes Los Angeles, Or- Riverside and San Bernar- unties.

program, due to start in will eliminate as much as 6 pounds of pollutants per Stegemeier said. Unocal will an advertising campaign in al languages Friday for AP and open telephone lines week to handle calls about it. participate in SCRAP, a car r will have to notify Unocal, drive the car under its own er to a scrap yard to be named. Only cars that are registered for previous six months to owners ng in the Los Angeles Basin will eligible. The owner will receive a 00 check and a voucher for use local bus systems.

SCRAP would getting

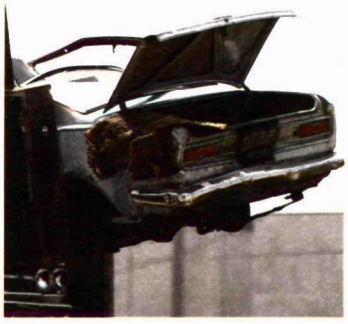
Top: All cars were numbered in sequence as they were received; opposite: Richard J. Stegemeier, Unocal chairman, president and CEO, is a leading proponent of cost-effective, market-based solutions to environmental problems.

to 30 times more per mile than new vehicles, but nobody was sure how dirty the old cars actually were.

Unocal set out to measure the exhaust emissions at idle for every vehicle purchased. It soon became clear that these cars polluted far more than the average car. In fact, about 20 percent of the vehicles "pegged" (exceeded the measuring capabilities of) the BAR-90 Smog Check machines at 2,000-plus parts per million of hydrocarbon.

Unocal decided to get more definitive data by subjecting a random sample of the cars to the far more sophisticated and rigorous Federal Test Procedure. This test measures emissions under varying speed and load conditions and is the same test used to certify new cars. CARB, an active supporter of this decision, tested 43 cars, while Unocal arranged for 31 to be tested at an independent lab.

Working together, CARB and Unocal have probably amassed the world's best data base on the emission characteristics of old cars. The results showed that the pre-'71 cars were two to three times as dirty as expected — in some categories *more than 90 times dirtier* per mile than a new vehicle.



The worst car tested emitted enough unburned gasoline from its tail pipe to run a brand new vehicle getting 32 miles per gallon.

Top and bottom: SCRAP cars enter the crusher at the Hugo Neu-Proler Company's metal center near downtown Los Angeles.

SCRAP IN HIGH GEAR

By almost any measure, SCRAP was highly successful. It drew praise from such long-term advocates of clean air as Norton Younglove, chairman of the South Coast Air Quality Management District, who said, "Unocal's contribution not only meets the challenge, but also illustrates the commitment and leadership we must all exert to make clean air a reality in Southern California."

Hundreds of individuals wrote or called Unocal in support of the program. Many backed up their praise with financial contributions. The CEO of Cypress Semiconductor, based in San Jose, sent in the first check for $700 with the comment, "Buy and bury one for us, too." Ford Motor Company contributed enough money to scrap an additional 1,000 cars, the SCAQMD donated $100,000, and the Southern California Ford and Lincoln-Mercury Dealers Association, another $63,000.

Others provided incentives of their own. First Interstate Bank set up a special loan program for SCRAP participants, offering lower interest rates and longer repayment terms on some new and used vehicles. Ford offered participants special rebates on new cars.

Government agencies also caught the spirit by cutting red tape and providing personnel and equipment for clearing auto registrations and conducting smog tests. The California Air Resources Board laboratory tested emissions from SCRAP vehicles, the Bureau of Automotive Repair researched odometer readings, and the Department of Motor Vehicles provided on-site personnel and computers.

THE IMPLICATIONS OF SCRAP

The success of SCRAP brought renewed attention to innovative approaches to environmental problems. In particular, it highlighted the opportunity for regulators to create conditions that would make programs like SCRAP economically feasible for many companies in the Los Angeles Basin. The device that could make this work is called an "offset," and regulators began viewing it with renewed interest in the wake of SCRAP's results.

Offsets are credits that companies could receive for cleaning up air pollution from mobile sources — air pollution caused by some other organization or individual. These credits could temporarily offset the same amount of the company's own pollution "debt" (i.e., emissions from its own stationary sources).

Offsets would not necessarily cancel a company's pollution debt; they might simply defer it, providing time to explore more cost-effective technologies and systems for cleaning up the air.

Through a program of innovative offsets supplementing the existing regulatory framework, companies and public agencies could be encouraged to focus their efforts on the most cost-effective and immediate environmental programs. Properly used, offsets could accelerate the cleanup process, get the easiest (and often worst) causes of smog cleaned up first, and save money for the consumer, who ultimately pays the cost of pollution abatement and control.

Each year for the first three years the total emissions eliminated by crushing the 8,376 cars in SCRAP equal...

the total emissions of 150,000 brand new cars

the total emissions from 1 million gallons of oil based paint

over half the CO emissions from all the refineries and power plants in the L.A.Basin

all of the hydrocarbon emissions of all barbecue lighter fluids in the L.A.Basin

Unocal Chairman Richard J. Stegemeier describes the SCRAP program at the kickoff press conference.

1JMX558

SCRAP: TEST RESULTS IN DETAIL

Unocal's SCRAP program removed 8,376 pre-1971 vehicles from Los Angeles area roads between June 1 and September 29, 1991. As a result, 12.8 million pounds of potential air pollution (hydrocarbons, carbon monoxide, and nitrogen oxides) were removed from L.A.'s air each year.

Most of the vehicles scrapped were large American cars: 60 percent had eight-cylinder engines and 24 percent had six-cylinder engines. The balance were smaller foreign cars (*Figure 4*). Eleven percent of the vehicles were trucks and vans.

The Federal Test Procedure. Unocal, working closely with the California Air Resources Board, selected 74 of the SCRAP cars for intensive emissions testing. Forty-three vehicles were tested at CARB facilities, and 31 were tested at an independent laboratory. Each car was put on a chassis dynamometer and run through the standard Federal Test Procedure (FTP).

The FTP is the same test procedure used with new cars to demonstrate that they meet mandated emissions levels. The procedure involves a series of driving cycles performed on a chassis dynamometer, which allows a vehicle to be tested at speed and under load conditions.

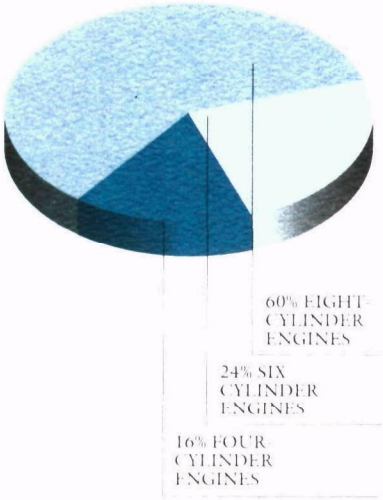
The first and third cycles are identical, except that the first cycle begins with a cold start. Simulated speeds range up to 60 miles per hour. The second cycle is a low-speed test involving simulated "stop and go" city driving.

In relatively new cars, most of the emissions are collected in the cold start phase before the catalyst warms up to operating temperature. The SCRAP vehicles, however, produced substantial emissions under virtually all driving conditions.

The FTP test results for all 74 cars are summarized in *Figure 5* on page 10. These findings were then compared with projected emissions based on the Motor Vehicle Emissions Factor (EMFAC 7D) modeling

Figure 4

VEHICLES SCRAPPED



Opposite: The crusher goes to work on an old car.

Figure 5

FTP CVS-75 TEST RESULTS — 74 CARS

	GRAMS / MILE				"CITY" MILES PER GALLON
	HC	CO	NOX	PM-10*	
'67 MERCURY COUGAR	17.5	16.6	3.28		13.4
'70 CHRYSLER IMPERIAL	6.7	129.4	1.77		8.9
'68 BUICK SKYLARK	14.6	87.2	1.13		12.8
'69 MERCURY COUGAR	15.0	250.2	0.57		10.1
'66 FORD GALAXY	6.7	123.7	2.04		12.2
'70 CHEVROLET NOVA	2.0	22.2	2.76		15.2
'69 CHEVROLET MALIBU	8.6	118.0	2.35		8.5
'67 CHEVROLET CHEVELLE	4.3	52.4	3.91	0.26	11.7
'67 AMC RAMBLER	9.6	151.0	1.26	0.20	14.1
'64 PLYMOUTH FURY	51.3	90.6	3.59	16.76	10.4
'70 FORD WAGON	4.9	63.7	4.26	0.29	10.0
'67 PONTIAC TEMPEST	31.4	62.4	5.51	0.44	12.7
'65 DODGE POLARA	27.5	68.5	4.05	0.20	10.5
'66 FORD RANCHERO	8.3	67.3	1.47	0.69	14.0
'68 DODGE DART	3.2	66.7	4.19		16.6
'67 CHRYSLER NEWPORT	18.1	163.4	2.63		9.8
'65 PONTIAC TEMPEST	7.5	111.7	2.97		13.2
'69 BUICK ELECTRA	2.8	46.1	3.81		10.9
'70 FORD MAVERICK	5.3	125.4	0.99		15.4
'68 TOYOTA CORONA	3.8	78.4	3.56		18.2
'70 PONTIAC LEMANS	87.4	126.8	4.35		7.2
'70 FORD CORTINA	10.8	163.7	0.45		14.7
'68 FORD FALCON	4.6	50.6	5.72	0.22	14.0
'70 BUICK ELECTRA	6.4	104.1	2.82	0.12	9.7
'68 MERCURY MONTEREY	5.1	54.3	2.98	0.18	9.6
'65 CHRYSLER NEW YORKER	8.1	132.8	0.89	0.20	10.6
'64 BUICK SKYLARK	31.2	56.9	3.03	0.61	13.1
'66 CADILLAC DEVILLE	2.2	26.0	3.41	3.45	9.2
'70 FORD MAVERICK	2.1	12.0	3.27	0.14	15.2
'70 CADILLAC DEVILLE	39.4	135.3	0.93	0.10	8.4
'69 BUICK WILDCAT	3.9	52.9	4.01		10.0
'69 DODGE CORONET	5.5	70.3	3.34		14.2
'70 PLYMOUTH FURY	10.6	149.7	2.29		9.8
'64 PLYMOUTH VALIANT	66.9	76.3	3.59		12.9
'69 VOLKSWAGEN BEETLE	3.8	41.6	1.04		21.0
'67 VOLKSWAGEN BEETLE	7.1	71.7	1.16		22.2
'70 BUICK LESABRE	13.3	126.4	1.60	0.81	10.8
'66 BUICK SKYLARK	39.8	128.5	1.36	0.50	9.4
'71 FORD LTD WAGON	6.0	48.0	6.62	0.37	10.5
'65 OLDSMOBILE F-85	8.6	117.5	1.92	0.43	10.5
'69 CADILLAC DEVILLE	3.7	34.6	3.19	0.97	8.3
'70 VOLVO	51.5	101.5	1.45	0.65	10.8
'70 FORD LTD	28.4	22.0	3.96	7.74	9.0
'69 DODGE DART	3.7	43.9	7.34	0.45	16.1
'67 FORD MUSTANG	5.1	57.4	1.87		18.3
'68 MERCURY MONTEGO	4.4	79.2	1.72		12.5
'70 CHEVROLET NOVA	4.3	58.4	2.15		16.0
'68 FORD FALCON	11.1	77.0	2.72		14.9
'68 BUICK SPECIAL	65.5	88.4	4.87		10.4
'70 CHRYSLER IMPERIAL	6.0	144.1	1.58		9.9
'67 TOYOTA CORONA	3.8	24.5	2.56		20.8
'70 FORD MAVERICK	4.8	112.6	1.28	0.59	16.2
'70 DODGE DART	51.6	169.2	0.86	0.95	11.4
'70 TOYOTA CORONA	16.8	76.6	2.39	0.28	16.4
'69 CHEVROLET IMPALA	49.7	67.4	2.87	1.01	10.9
'65 CHEVROLET VAN	17.1	79.3	5.49	4.37	11.8
'67 BUICK SPECIAL	20.7	210.5	0.29	2.86	9.1
'63 DODGE DART	5.8	77.2	5.72	0.57	13.1
'69 CHEVROLET IMPALA	14.9	82.9	2.51	0.47	9.6
'68 AMC RAMBLER	3.8	45.6	3.16		17.4
'66 FORD FAIRLANE	80.7	123.5	1.32		9.2
'70 TOYOTA CORONA	3.6	44.0	4.25		22.0
'70 FORD MUSTANG	9.5	80.4	2.34		16.6
'68 CHEVROLET IMPALA	37.3	110.6	5.81		10.0
'70 LINCOLN CONTINENTAL	5.1	15.4	6.64		11.9
'67 DODGE DART	8.6	160.7	0.85		14.3
'62 PONTIAC TEMPEST	5.0	62.6	3.88		16.9
'70 FORD LTD	13.7	72.7	7.06		10.8
'70 FORD MAVERICK	3.1	22.2	3.39		13.3
'70 CHEVROLET IMPALA	32.2	71.9	3.72		11.6
'70 BUICK SKYLARK	2.4	20.8	2.52		11.5
'68 VOLVO WAGON	4.4	32.8	3.07		18.3
'70 TOYOTA COROLLA	11.4	87.1	0.82		22.1
'65 FORD	3.5	41.3	4.73		14.8
AVERAGE	16.3	84.3	2.96	1.51	12.1

*Only 31 vehicles were tested for particulate emissions.

program used by CARB, as shown in *Figure 6*.

Hydrocarbon emissions from the SCRAP vehicles were 99 times greater than from a 1990 car. That is nearly three times what had been expected: 24.8 grams per mile (actual) versus 8.3 grams per mile (projected) for the typical pre-1971 car.

Figure 6

FTP TEST RESULTS VS. PROJECTIONS *(GRAMS PER MILE)*

SCRAP test results	HC	CO	NOx	PM10
FTP Results	16.28	84.3	2.96	1.51
Adjustments*	8.49	16.5	– 0.02	—
"IN-USE" Emissions	24.77	100.8	2.94	1.51
Air quality model EMFAC-7D				
'66-'70 Cars	8.34	50.1	4.39	0.54**
1975 Cars	3.88	23.4	2.53	0.30**
1990 Cars	0.25	1.8	0.27	0.21**

* To reflect non-tail pipe emissions and scale to 16 mph. ** Includes particulates from tire wear.

The FTP results for SCRAP vehicles actually understate the true emission levels. First, they include tail pipe emissions only. Typically, evaporative emissions would add another 4 to 5 grams of hydrocarbon emissions per mile, while running losses would add another 1 to 2 grams per mile. That is why the FTP results were adjusted in *Figure 6* (using EMFAC model methodology) to reflect total "in use"emissions. As a result, total hydrocarbon emissions from SCRAP vehicles were nearly 100 times greater than HC emissions from a brand-new car. Carbon monoxide emissions were more than 50 times greater.

Individual test results varied widely. The worst 10 percent of the cars contributed 40 percent of the HC emissions (*Figure 7*), about 20 percent of the CO emissions (*Figure 8*), and 20 percent of the NOx emissions (*Figure 9*).

The FTP results may be conservative because the cars selected for

Figure 10

EMISSION TESTS AT IDLE

	NUMBER CARS	HC (PPM)	CO (%)
FTP Vehicles	74	842	3.8
All SCRAP Vehicles*	8,335	1,014	3.6
Difference		-172	0.2

*Excludes cars with bad exhaust systems.

Figure 7

SCRAP HC EMISSIONS

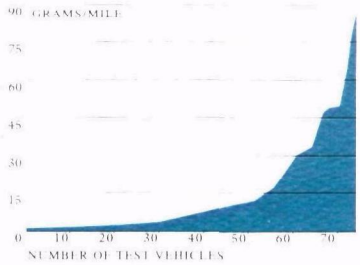


Figure 8

SCRAP CO EMISSIONS

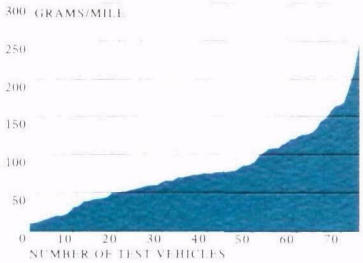
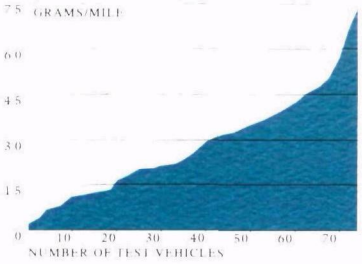


Figure 9

SCRAP NOx EMISSIONS



testing were somewhat cleaner than the average SCRAP vehicle at idle, as shown in *Figure 10* on page 11. In addition, 65 percent of the cars examined for FTP testing were rejected because of leaky exhaust systems, excessive smoke, or other problems.

Figure 11

HOUSEHOLD INCOME DISTRIBUTION

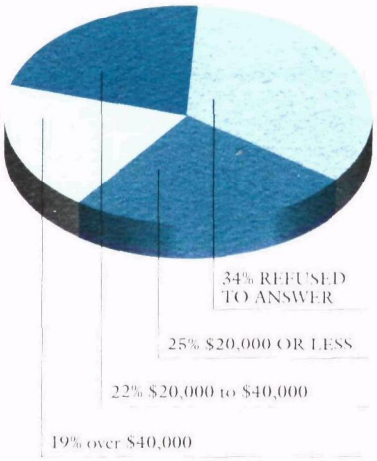
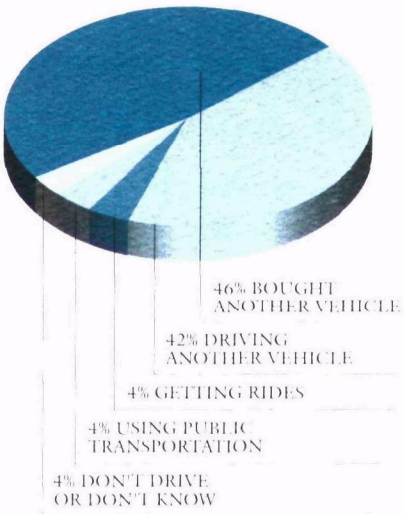


Figure 12

TRANSPORTATION ARRANGEMENTS AFTER SCRAP



THE FOLLOW-UP SURVEY

To discover more about the impact of SCRAP, Unocal asked Fairbank, Bregman & Maullin, Inc. (FB&M) — an independent public opinion research company — to contact a sample group of SCRAP participants after the program was over. In January 1991, FB&M conducted telephone interviews with more than 800 individuals.

The demographics of the SCRAP participants generally reflected the population of the South Coast Air Basin. However, SCRAP participants were on average somewhat older, much more likely to be male, and reported 15 percent less household income (*Figure 11*). Of SCRAP participants interviewed, nearly half were employed full time, 24 percent were retired, 10 percent were employed part time, 8 percent were unemployed, and the rest were homemakers or students, or they refused to answer the question. Sixty-two percent identified themselves as white, 25 percent as Hispanic or Latino, and 8 percent as black.

Eighty-eight percent of respondents indicated that they were using their old cars before putting them into the SCRAP project. Half the respondents were driving their cars every day, and 29 percent were driving their cars at least a few times per week. Sixty-five percent used their cars primarily to commute to work, and the rest either to run errands or go to school.

Forty-six percent of the principal drivers of the cars sold to SCRAP bought another vehicle, 42 percent were using another car, 4 percent were getting rides, and 4 percent were using public transportation (*Figure 12*). Of those driving replacement vehicles, more than 80 percent were behind the wheel of a newer (1975 or later), less polluting car. The net result: Cleaner air for Los Angeles.

Marian Slavin

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Pima Association of Governments

Tuscon, Arizona

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TRAVEL REDUCTION PROGRAM

TUCSON, ARIZONA
FACT SHEET

The Travel Reduction Program (TRP) is the result of local ordinances passed in early 1988 by five local jurisdictions (Pima County, City of Tucson, City of South Tucson, Town of Marana, and Town of Oro Valley). The objectives of the ordinances are to improve regional air quality and reduce traffic congestion by requiring that Major Employers (over 100 full-time equivalent employees at a single site) achieve a 15% utilization of alternate modes (carpool, vanpool, bicycle, walk, or transit) or 15% reduction in Vehicle Miles Traveled (VMT) by their employees in their daily work commute.

Employees that work compressed work weeks, utilize telecommuting or commute in compressed natural gas powered vehicles receive AMU credit. The 15% alternate mode utilization (AMU) should be achieved by the end of the first full year of participation in the TRP. The second and third year alternate mode utilizations are 20% and 25% respectively. An employer may alternatively comply with the ordinances by achieving a 15%, 20%, and 25% reduction in vehicle miles traveled in the first, second, and third year.

The TRP regional implementation is centralized at Pima Association of Governments (MPO) and overseen by the Travel Reduction Program Regional Task Force (TRP RTF) as established by the April 1988 Intergovernmental Agreement among the five jurisdictions with Travel Reduction Ordinances. Eastern Pima County is a non-attainment area for Carbon Monoxide.

Every year Major Employers are required by ordinance to: conduct a survey of all employees, disseminate alternate mode information, appoint a transportation coordinator and produce a TRP Plan detailing how they are going to encourage their employees to utilize alternate modes in their daily home-to-work commute.

Approximately one-third of the regional workforce is participating in the program with an annual budget of $300,000. The regional daily average one-way work commute is 10.6 miles.

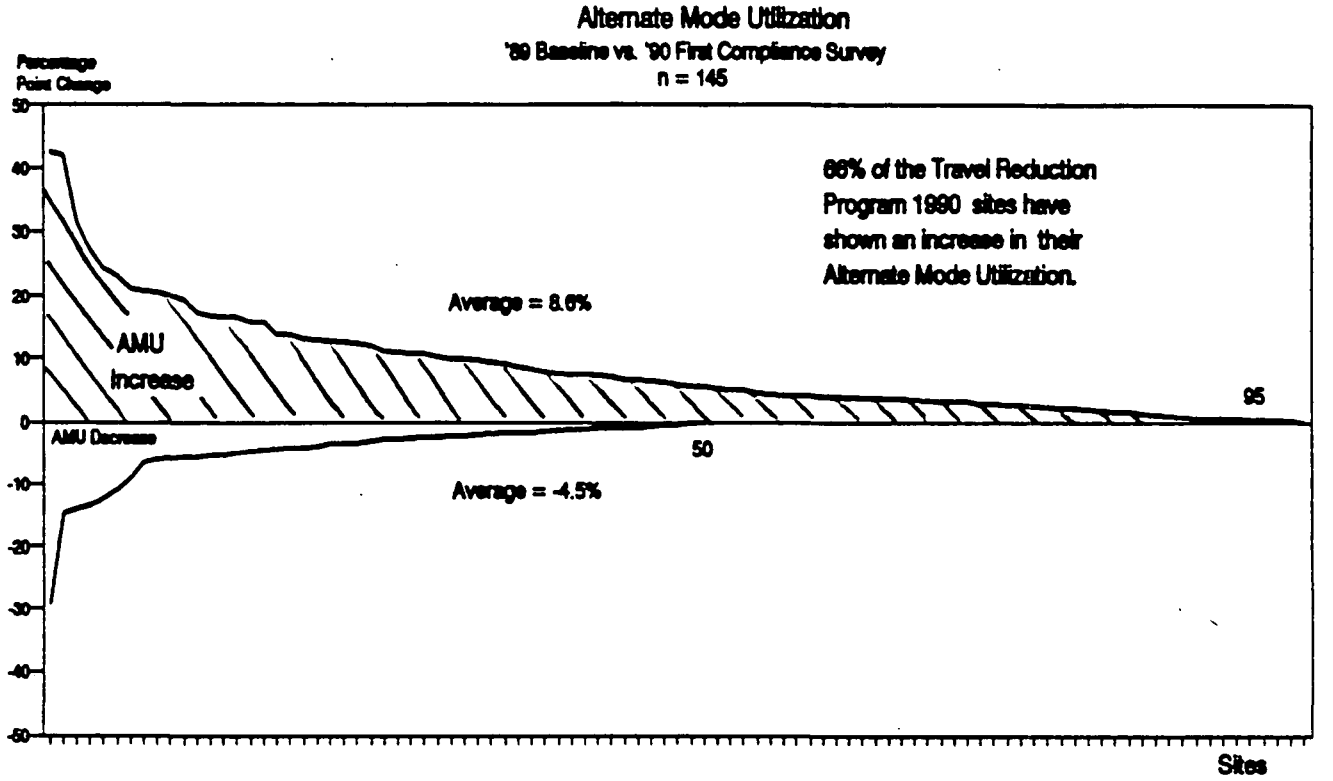
TRP REGIONAL RESULTS

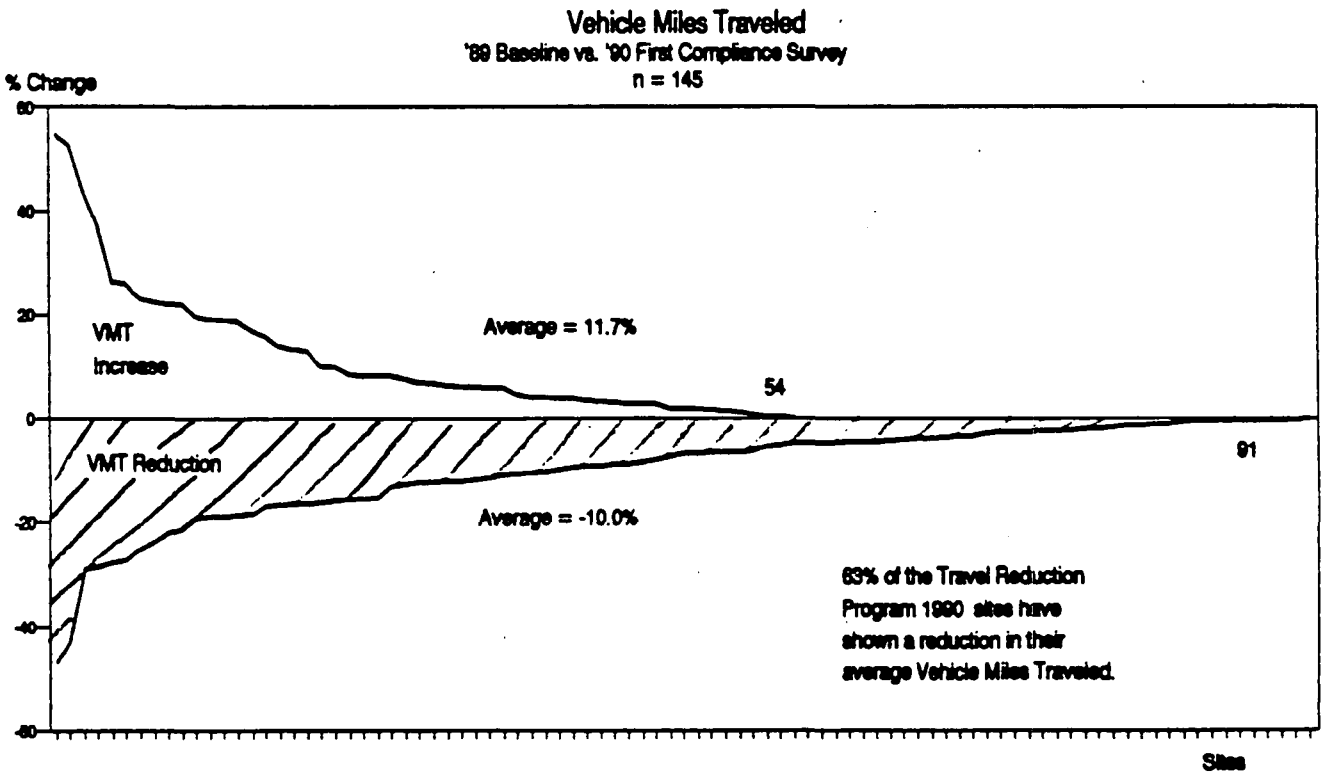
	1-12/89	1-12/90	1-6/91
# Sites in Program	148	154	162
# Employees	75,000	77,000	80,000
Alternate Mode Utilization	17.59%	20.21%	22.3%
Vehicle Miles Traveled	47.29	45.90	45.5

Alternate Mode Utilization credit accrues when an employee uses an alternate mode at least 1 day/week in the work commute.

Vehicle Miles Traveled are factored by mode ridership and are one-way weekly motor vehicles miles only.

Of the 145 companies that completed the TRP survey in both 1989 and 1990, 95 sites (66%) have shown an increase in alternate mode utilization and 91 (63%) have shown a decrease in vehicle miles traveled in the daily work commute.





For additional information or copies of the Program Annual Report, please contact: Marian A. Slavin, Travel Reduction Program Manager, (602) 792-2952, Pima Association of Governments, 177 N. Church, Ste. 405, Tucson, AZ 85701.

7/26/91

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- OE - Office of Enforcement
- OMS - Office of Mobile Sources
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