

May 2007

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How States Are Driving Cuts in Global Warming Pollution



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EXECUTIVE SUMMARY

Rising global temperatures, unpredictable weather and alarming scientific predictions have led to increasing public concern about the impacts of global warming on the environment, health and society. But while the Bush administration continues to resist efforts to reduce global warming pollution, many states are taking effective actions to address the threat—including the adoption of the “Clean Cars Program,” which sets limits on global warming pollution from cars, light trucks and SUVs.

The global warming benefit will be significant.

- The 12 states that have adopted the Clean Cars Program will cut global warming pollution from cars, light trucks and SUVs by 74 million metric tons per year in 2020.
- The cumulative global warming emission reduction from the program between 2009 and 2020 is 392 million metric tons, the equivalent to taking 74 million of today’s cars off the road for an entire year.
- Adoption by six additional states that are considering the policy would increase the total emission reduction to 100 million metric tons per year in 2020 and

cumulative reductions to 536 million metric tons.

The Clean Cars Program will also reduce gasoline consumption and save money for consumers.

- The standards could reduce gasoline consumption by as much as 8.3 billion gallons per year in 2020—as much as is consumed by all the vehicles in Florida in a year.
- Consumers could save up to \$25.8 billion annually at the pump in 2020.
- If six more states adopt the Clean Cars Program, gasoline consumption could drop by a total of 11.2 billion gallons in 2020, saving \$34.7 billion for consumers at the pump.

States’ adoption of the Clean Cars Program can reduce global warming pollution, cut energy use, and save money for consumers. The federal government should not interfere with the progress being made by these states and should grant California’s request for a Clean Air Act waiver so that the states can implement the Clean Cars Program.

GLOBAL WARMING: A THREAT NOT TO BE IGNORED

Human activities—particularly the burning of fossil fuels—have changed the composition of the atmosphere in ways that threaten dramatic alteration of the global climate. The first signs of warming are evident worldwide and additional changes will have serious impacts on our nation's future.

Temperatures are rising, with 2006 the second-hottest year on record in the United States.¹ Worldwide, 11 of the years from 1995 to 2006 to rank among the 12 warmest years on record. Sea level has risen 6.7 inches in the past century.² The number of Category 4 and Category 5 hurricanes has increased substantially worldwide over the last 35 years.³

Future temperature increases and changes in precipitation patterns are expected to alter the

distribution of plants and change crop productivity.⁴ Higher sea levels may flood coastal areas, especially in Gulf Coast and South Atlantic states, causing property damage, eroding beaches and raising the salinity of drinking water supplies. Stronger storms may cause increased flooding on rivers and streams. Public health may suffer as heat-related deaths rise and insect-borne diseases spread.

As the Bush administration has continued to resist meaningful measures to reduce global warming pollution, individual states have taken action, adopting a variety of measures to curb global warming pollution. Among the most effective of these policies are the vehicle global warming emission standards designed by the state of California and since adopted by 11 other states.

THE CLEAN CARS PROGRAM: REDUCING GLOBAL WARMING EMISSIONS

The Clean Air Act allows states with air quality problems to choose between federal vehicle emission standards and the more protective standards—known as the Clean Cars Program—implemented by the state of California.

Unlike current federal standards, the Clean Cars Program includes limits on global warming

pollution. Beginning in model year 2009, the program will require automakers to reduce the average amount of global warming pollution from their cars, light trucks and SUVs. By 2015, new cars will be required to emit 34 percent less global warming pollution on average, and light trucks 25 percent less pollution.⁵ These aggressive, yet achievable standards will result in

significant reductions in global warming pollution.

To date, 12 states—California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington—have adopted the Clean Cars Program.

We tallied the benefits of the Clean Cars Program in those states as reported in state-specific analyses compiled by three different organizations: the California Air Resources Board, the Northeast States for Coordinated Air Use Management (NESCAUM), and U.S. PIRG Education Fund. Each report provided enough data to allow us to calculate emissions from light-duty vehicles with and without the Clean Cars Program (Table 1).

Light-duty vehicles in these 12 states are projected to release 443 million metric tons of carbon dioxide (MMTCO₂) in 2020, the result of increasing vehicle travel, growing use of SUVs and light trucks, and stagnant fuel economy. By adopting the Clean Cars Program, annual emissions will be reduced by an average of 17 percent, to 369 MMTCO₂ in 2020 (Table 1).

By 2020, vehicles in these 12 states will release 74 million metric tons of carbon dioxide less pollution as a result of the Clean Cars Program. Cumulative emission reductions from the inception of the program through 2020 are even greater, totaling 392 MMTCO₂.⁶

Table 1. Light-Duty Vehicle Carbon Dioxide Emissions in 2020 from States with Clean Cars Program (MMTCO₂)⁷

| State | With Vehicle Global Warming Pollution Standards | | | Percent Reduction |
|---------------|---|------------|-----------|-------------------|
| | Projected | Standards | Reduction | |
| California | 161.7 | 132.6 | 29.1 | 18% |
| Connecticut | 15.1 | 12.2 | 2.8 | 19% |
| Maine | 7.4 | 6.1 | 1.3 | 17% |
| Maryland* | 29.3 | 24.9 | 4.4 | 14% |
| Massachusetts | 25.2 | 20.5 | 4.6 | 18% |
| New Jersey | 55.0 | 45.1 | 9.9 | 18% |
| New York | 52.6 | 43.4 | 9.1 | 17% |
| Oregon* | 13.0 | 11.2 | 1.8 | 14% |
| Pennsylvania* | 49.7 | 43.7 | 6.0 | 12% |
| Rhode Island | 4.4 | 3.6 | 0.8 | 18% |
| Vermont | 3.8 | 3.2 | 0.7 | 17% |
| Washington* | 26.2 | 22.5 | 3.7 | 14% |
| Total | 443 | 369 | 74 | 17% |

* Lower percentage reductions for Maryland, Oregon, Pennsylvania and Washington are likely the result of methodological differences in the studies used to estimate the reductions, not reduced effectiveness of the program in those states. The analysis for these four states assumes that even without the Clean Cars Program, per-mile global warming pollution from vehicles will decline, thus reducing the relative benefit of the program.

What Is the Clean Cars Program?

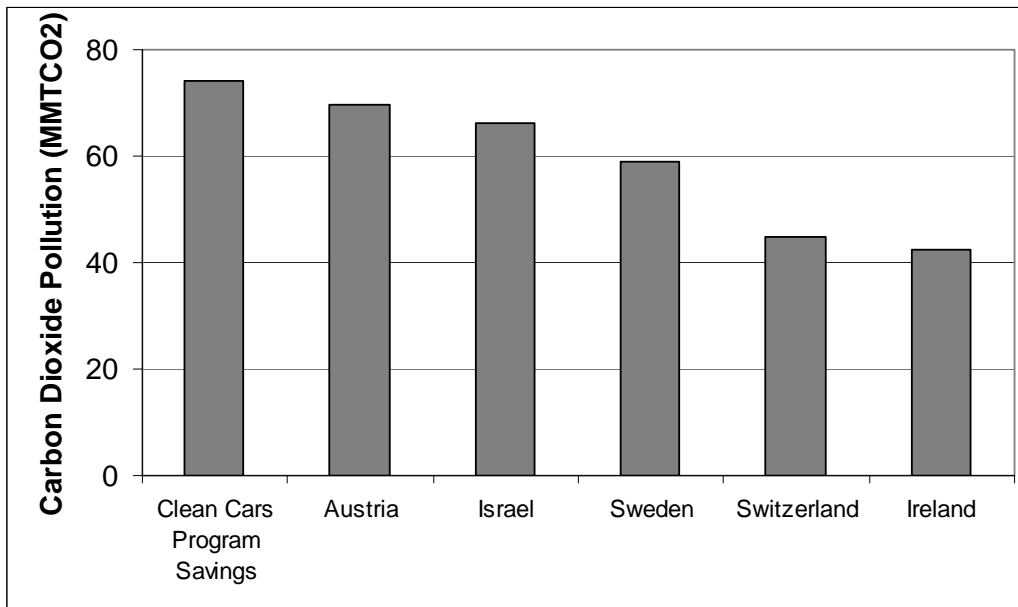
The Clean Cars Program is a series of air pollution standards adopted by the state of California. The Clean Air Act allows other states with serious air pollution problems to adopt the standards as well. There are three components to the program:

- **The Low-Emission Vehicle program**, which sets strong standards for emissions of smog-forming and toxic air pollutants.
- **The Zero-Emission Vehicle program**, which promotes advanced-technology vehicles such as hybrids, fuel-cell vehicles and electric vehicles.
- **Global Warming Emission Standards**, which limit emissions of pollutants that contribute to global warming.

The combined global warming pollution reduction from the 12 states that have adopted the program is significant on a global scale.

- The annual savings projected for 2020 are greater than the national global warming emissions from Austria and 170 other countries today.⁸ (See Figure 1.)
- The cumulative global warming emission reduction from the program between 2009 and 2020 is equivalent to taking 74 million of today's cars off the road for an entire year.⁹
- The emission reductions in 2020 are equal to a 6.6 percent reduction in current national emissions from transportation gasoline use.¹⁰

Figure 1. Annual Carbon Dioxide Emission Reductions from Clean Cars Program in 12 States in 2020 versus Emissions from Other Countries in 2004¹¹



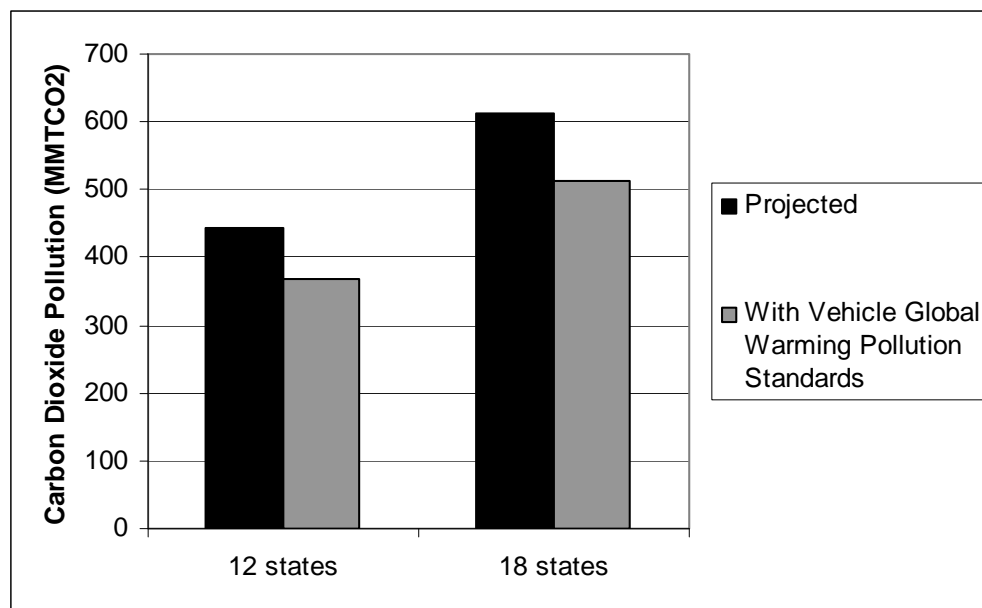
Six more states—Arizona, Colorado, Illinois, New Hampshire, New Mexico and North Carolina—are actively considering adopting the Clean Cars Program. If those six states adopt the program, the total global warming pollution reduction from having cleaner vehicles on the road would grow to

100 million metric tons of carbon dioxide per year in 2020 (Table 2). Estimated global warming pollution reductions in these states come from two analyses: work done by the Center for Climate Strategies and Environment Connecticut Research & Policy Center.

Table 2. Light-Duty Vehicle Carbon Dioxide Emissions in 2020 from States Considering Clean Cars Program (MMTCO₂)¹²

| State | Projected | With Vehicle Global Warming Pollution Standards | Reduction | Percent Reduction |
|---|------------|---|------------|-------------------|
| Arizona | 34.1 | 28.5 | 5.6 | 16% |
| Colorado | 20.6 | 18.2 | 2.4 | 12% |
| Illinois | 46.4 | 39.8 | 6.6 | 14% |
| New Hampshire | 7.7 | 6.8 | 0.9 | 11% |
| New Mexico | 11.5 | 9.6 | 1.9 | 17% |
| North Carolina | 49.1 | 41.0 | 8.1 | 16% |
| Total of states considering Clean Cars Program | 169 | 144 | 25 | 15% |
| Total of all states | 613 | 513 | 100 | 16% |

Figure 2. Global Warming Pollution in 2020 from Light-Duty Vehicles



THE CLEAN CARS PROGRAM: SAVING ENERGY AND SAVING MONEY

The Clean Cars Program has great potential to reduce U.S. petroleum consumption and save money for consumers. Automakers can use a variety of technologies to meet the standards, including technologies to reduce gasoline use, allow for the use of low-carbon vehicle fuels, or reduce global warming emissions from air conditioning.

Depending on how automakers choose to comply with the standards, the Clean Cars Program in 12 states could lead to a reduction in gasoline use of as much as 8.3 billion gallons annually in 2020—or more than one-fifth as much oil as we currently import from the Persian Gulf.¹³ Put another way, the standards would save as much fuel as if all drivers in America parked their cars for 22 days out of the year or if 14 million of today's cars were taken off the road.¹⁴ This is

more gasoline than is currently used by any single state in a year except Florida, Texas, and California.¹⁵

If 18 states adopt the program, gasoline consumption would decline by 11.2 billion gallons, or nearly enough gasoline to provide fuel to all the drivers in Texas for a year.

Reduced gasoline consumption could also translate into consumer savings at the pump. At today's average fuel prices (\$3.10 per gallon), consumers could save up to \$25.8 billion at the pump in 2020.¹⁶ These savings would more than offset the additional cost of vehicles complying with the program. The state of California projects that vehicle owners will save a total of \$41 to \$81 each year due to the standards—and that is assuming gasoline costs only \$1.74 per gallon.¹⁷

STATES MUST BE FREE TO ACT

States' freedom to adopt California air emission standards has led to cleaner air and technological advances that have benefited all Americans. The federal government should not interfere with their progress and should grant California's request for a Clean Air Act waiver so that the states can implement the Clean Cars Program.

The 12 states that have adopted the Clean Cars Program have taken leadership in reducing America's contribution to global warming. The federal government should follow their lead by limiting global warming pollution from cars, power plants, and factories and taking other steps to reduce global warming pollution, save energy, and save consumers money at the pump.

NOTES

¹ National Oceanic and Atmospheric Administration, *2006 Annual Climate Review: U.S. Summary*, 1 May 2007.

² Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policy Makers*, 5 February 2007.

³ P.J. Webster, et al., "Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment," *Science*, 309(5742):1844-1846, 16 September 2005.

⁴ Intergovernmental Panel on Climate Change, *Climate Change 2007: Impacts, Adaptation and Vulnerability, Summary for Policymakers*, 13 April 2007.

⁵ California Environmental Protection Agency, Air Resources Board, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gas Emissions from Motor Vehicles*, 6 August 2004.

⁶ Annual savings for each state except California were extracted from California Air Resources Board, *Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons*, 4 August 2005. Cumulative savings for California were calculated using the average ratio of cumulative savings to 2020 savings in other states that will implement the program beginning in model year 2009.

⁷ Estimated emission reductions come from three different analyses. For Northeastern states, we relied on an analysis conducted by the Northeast States for Coordinated Air Use Management (NESCAUM), as presented in *Northeast State GHG Emission Reduction Potential from Adoption of the California Motor Vehicle GHG Standards, Summary of NESCAUM Analysis*, October 2005. The California Air Resources Board included its estimate for California in *Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons*, 4 August 2005. For Maryland, Oregon, Pennsylvania, and Washington, we calculated the emission reductions using the methodology described in Elizabeth Ridlington and Brad Heavner, Environment Maryland Research and Policy Center, *Cars and Global Warming: Policy Options to Reduce Maryland's Global Warming Pollution from Cars and Light Trucks*, September 2006.

⁸ U.S. Department of Energy, Energy Information Administration, *International Energy Annual 2004*, 19 July 2006.

⁹ Based on 596 gallons of fuel per vehicle per year from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2005*, downloaded from www.fhwa.dot.gov/policy/ohim/hs05/pdf/nt6.pdf, 10 May 2007 and carbon dioxide emissions of 19.654 pounds per gallon of gasoline from U.S. Department of Energy, Energy Information Administration, *Voluntary Reporting of Greenhouse Gases Program, Fuel and Energy Source Codes and Emission Coefficients*, downloaded from www.eia.doe.gov/oiaf/1605/coefficients.html, 10 January 2006.

¹⁰ Current transportation-related gasoline consumption in BTU from Energy Information Administration, *State Energy Data System*, 9 August 2006, was multiplied by a carbon coefficient as specified in Energy Information Administration, *Documentation for Emissions of Greenhouse Gases in the United States 2003*, May 2005.

¹¹ U.S. Energy Information Administration, *International Energy Annual 2004*, 19 July 2006.

¹² Lower percentage reductions for some states are likely the result of methodological differences in the studies used to estimate the reductions, not reduced effectiveness of the program in those states. Estimated emission reductions come from two different methodologies. For Arizona, New Mexico and North Carolina, we relied on analyses conducted by the Center for Climate Strategies. Arizona data was from Center for Climate Strategies, *Completed and Pending Policy Option Descriptions*, prepared for 22 June 2006 meeting of Arizona Climate Change Advisory Group, and Center for Climate Strategies, *Final Arizona Greenhouse Gas Inventory and Reference Case Projections, 1990-2020*, approved by Arizona Climate Change Advisory Group March 2006. New Mexico data was from Center for Climate Strategies, *New Mexico Climate Change Advisory Group, Final Report*, December 2006. North Carolina data was from Center for Climate Strategies, *Transportation and Land Use Technical Work Group, Summary List of Mitigation Options*, prepared for 10 April 2007 meeting of Climate Action Plan Advisory Group Transportation and Land Use Technical Work Group, and Center for Climate Strategies, *Revised Draft North Carolina Greenhouse Gas Inventory and Reference Case Projections 1990-2020*, March 2006. For Colorado, Illinois and New Hampshire, we calculated the emission reductions using the methodology described in Elizabeth Ridlington and Brad Heavner, Environment Maryland Research and Policy Center, *Cars and Global Warming: Policy Options to Reduce Maryland's Global Warming Pollution from Cars and Light Trucks*, September 2006.

¹³ Based on 2005 crude oil and oil product import figures from U.S. Department of Energy, Energy Information Administration, *U.S. Total Crude Oil and Product Imports, by Country of Origin*, downloaded from tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbbl_a.htm, 11 May 2007.

¹⁴ Calculated assuming 19.654 pounds of carbon dioxide per gallon of gasoline, per U.S. Department of Energy, Energy Information Administration, *Voluntary Reporting of Greenhouse Gases Program, Fuel and Energy Source Codes and Emission*

Coefficients, downloaded from www.eia.doe.gov/oiaf/1605/coefficients.html, 10 January 2006. Total gasoline consumption from U.S. Department of Energy, Energy Information Administration, *Prime Supplier Sales Volume for 2005*, 10 May 2007. Based on an assumption of 596 gallons of fuel per vehicle.

¹⁵ Annual highway gasoline consumption of 8.3 billion gallons in Florida in 2005, 15.6 billion gallons in California and 11.3 billion gallons in Texas from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2005*, downloaded from www.fhwa.dot.gov/policy/ohim/hs05/index.htm, 10 May 2007.

¹⁶ Current price of gasoline from U.S. Department of Energy, Energy Information Administration, *Gasoline and Diesel Fuel Update*, 14 May 2007.

¹⁷ Meszler Engineering Services, *GHG Emission Standards for Vehicles: An Overview of California's Pavley Requirements*, presentation to Rhode Island GHG Process Stakeholders, 28 April 2005.