

December 13<sup>th</sup>, 2005

Testimony before the state Senate Transportation Committee and the state Senate Environmental Resources & Energy Committee regarding vehicle emission standards.

Nathan Willcox, PennEnvironment Energy & Clean Air Advocate

Thank you, Chairman Madigan, Madame Chairwoman White and members of the Committees, for the opportunity to present testimony to you today on the important issue of vehicle emission standards in Pennsylvania. As you may know, PennEnvironment is a statewide non-profit, non-partisan environmental advocacy organization with more than 15,000 citizen members across the state. PennEnvironment has been active on air pollution and vehicle emission standard issues at the state and national level, and has worked to educate the public and decision makers on these issues.

**Summary:** Given the public health and environmental threat posed by air pollution in Pennsylvania, the state should implement the strongest possible programs to reduce air pollution in the Commonwealth. Cars and trucks are a significant source of this air pollution, but thankfully there are both technologies that will drastically reduce pollution from automobiles, and an established set of vehicle emissions standards that will bring these cleaner vehicles to Pennsylvania faster than weaker federal standards. We urge members of the Senate to give Pennsylvanians a greater choice in purchasing these cleaner vehicles by supporting implementation of these standards in Pennsylvania, as encompassed in the Pennsylvania Clean Vehicles Program. We also urge members of the Senate to reject any legislative attempts to prevent or delay our state regulators' efforts to implement these standards.

**Background & Need for Air Pollution Reductions:** While air quality has improved in Pennsylvania and across the country over the last three decades, Pennsylvania still suffers from air pollution levels that pose significant public health and environmental threats, and levels that represent some of the worst air pollution in the country. One air pollutant of primary concern is ground-level ozone or smog pollution. Nitrogen oxides and volatile organic compounds (VOCs) react with heat and sunlight to create the smog that prompts "Code Red" ozone alert days advising citizens to limit their outdoor activities.

In 2003, Pennsylvania ranked 11<sup>th</sup> nationwide for the worst ozone smog pollution nationally, as measured by the number of exceedances of the Environmental Protection Agency's (EPA) 8-hour health-based ozone standard.<sup>1</sup> Preliminary data from 2005 suggests that from May through August there were at least 20 days on which monitors in

---

<sup>1</sup> PennEnvironment Research & Policy Center, *Danger in the Air: Unhealthy Levels of Air Pollution in 2003*. September, 2004.

Pennsylvania recorded smog levels exceeding EPA's health-based standard.<sup>2</sup> In addition, 37 Pennsylvania counties have been named by EPA as 'non-attainment' areas for exceeding the 8-hour health-based ozone standard.<sup>3</sup> In addition to creating smog pollution, nitrogen oxides also react with other substances in the air to form acid rain, which damages forests, lakes, rivers and streams.

In addition to ozone smog pollution, two other air pollutants of particular concern in Pennsylvania are air toxics such as benzene, and global warming pollutants such as carbon dioxide.

## PUBLIC HEALTH IMPACTS OF AIR POLLUTION

Ozone smog pollution creates a host of public health problems, and exposure to even very low levels of ozone contributes to a wide range of adverse health effects. Much like a sunburn affects the skin, ozone burns our lungs and airways, causing them to become inflamed, reddened, and swollen. Children, senior citizens, and people with respiratory diseases are particularly vulnerable to the health effects of ozone smog pollution. In 1997, EPA tightened the National Ambient Air Quality Standard for ozone, and concluded that, when inhaled even at very low levels, ozone can cause chest pain, aggravate asthma, reduce lung function, increase emergency room visits for respiratory problems, and lead to irreversible lung damage.<sup>4</sup> Here in Pennsylvania, it is estimated that ozone pollution triggers 370,000 asthma attacks annually,<sup>5</sup> and there are 740,000 adult asthmatics in Pennsylvania, or nearly 8 percent of the state's adult population.<sup>6</sup>

Since 1997, more than 1,700 additional studies on the health and environmental effects of ozone smog pollution have been published in peer-reviewed journals.<sup>7</sup> These studies point to additional, even more serious health effects associated with exposure to ozone smog pollution, including the *development* of asthma in individuals (vs. the triggering of asthma attacks),<sup>8</sup> the development of cardiovascular diseases,<sup>9</sup> increased risk of birth defects in the children of pregnant women exposed to ozone smog pollution,<sup>10</sup> and premature mortality.<sup>11</sup>

---

<sup>2</sup> Data obtained from Frank O'Donnell, Clean Air Watch on November 15, 2005. The data was collected from state-run air pollution monitors.

<sup>3</sup> U.S. Environmental Protection Agency (EPA), "8-Hour Ground-level Ozone Designations," <http://www.epa.gov/ozonedesignations/>. Accessed December 7, 2005.

<sup>4</sup> EPA, *Air Quality Criteria for Ozone and Related Photochemical Oxidants*, 1996.

<sup>5</sup> Abt Associates, Inc., Clear the Air: National Campaign Against Dirty Power. *Out of Breath: Health Effects from Ozone in the Eastern United States*, October 1999, 37.

<sup>6</sup> American Lung Association, *Trends in Asthma Morbidity and Mortality 2004*, April 2004.

<sup>7</sup> EPA, *Final Regulatory Impact Analysis: Control of Emissions from Non-Road Diesel Engines*, May 2004, 2-90.

<sup>8</sup> Rob McConnell et al, "Asthma in Exercising Children Exposed to Ozone: A Cohort Study," *The Lancet*, 359, 386-391, 2 February 2002.

<sup>9</sup> R.D. Brook, B. Franklin, W. Casio, Y. Hong, G. Howard, M. Lipsett, R. Luepker, M. Mittleman, J. Samet, S.C. Smith, I. Tager, "Air Pollution and Cardiovascular Disease: A Statement for Healthcare Professionals from the Expert Panel on Population and Prevention Science of the American Heart Association," *Circulation* 2004; 109:2655-2671

<sup>10</sup> Beate Ritz et al, "Ambient Air Pollution and Risk of Birth Defects in Southern California," *American Journal of Epidemiology*, 155(1) 17-25, 2002.

<sup>11</sup> M.L. Bell, A. BcDermott, S.L. Zeger, J.M. Samet, F. Dominici. "Ozone and short-term mortality in 95 urban communities, 1987-2000. *JAMA* 2004; 292:2372-2378.

Also, toxic or hazardous air pollutants, such as benzene, have significant public health impacts as well. Many are known or suspected to cause cancer, birth defects, neurological damage, and other serious health effects. Benzene specifically is known to cause leukemia.<sup>12</sup>

## CARS' AND LIGHT TRUCKS' CONTRIBUTION TO AIR POLLUTION

In Pennsylvania, highway vehicles—including cars and light trucks—are responsible for a significant portion of the air pollution created. Specifically, in 2001, highway vehicles emitted over 300,000 tons of smog-forming nitrogen oxides—or 37 percent of the state's total emissions—and over 180,000 tons of volatile organic compound emissions (VOCs), or 30 percent of the VOC emissions in Pennsylvania.<sup>13</sup> In 2001, transportation sources accounted for 27% of Pennsylvania emissions of the global warming gas carbon dioxide.<sup>14</sup>

## POLLUTION REDUCTION TECHNOLOGY

Thankfully, there is pollution control technology available today that can make all cars cleaner cars. In addition to the advanced technology hybrid vehicles that are more efficient and often pollute less than conventional cars and trucks, there are also technologies that can be used to make conventional cars and trucks pollute less.

Ozone smog and air toxics pollution reduction technologies that can be applied to most conventional car and truck models include exhaust gas recirculation; oxygen sensors that allow adjustments in the air/fuel mix in a vehicle's cylinders in order to maximize the efficiency of combustion and ensure proper function of the catalytic converter; faster-heating catalytic converters to reduce emissions that take place while the car is heating up; improved computerized control of the engine start-up sequence to reduce "cold-start" emissions;<sup>15</sup> and "smog-eating" coatings on radiators that convert ground-level ozone in ambient air into oxygen.<sup>16</sup>

Global warming pollution reduction technologies include more efficient engines, more aerodynamic designs, cylinder deactivation, improved lubricating oil,<sup>17</sup> direct-injection engines, advanced transmissions, integrated starter-generators, weight reduction,<sup>18</sup> and improved air conditioning systems.<sup>19</sup>

---

<sup>12</sup> EPA, Office of Air and Radiation, <http://www.epa.gov/air/toxicair/newtoxics.html#what>. Accessed May 6, 2005.

<sup>13</sup> Data obtained directly from U.S. EPA Emission Factor & Inventory Group, Office of Air Quality Planning and Standards, March 8, 2005.

<sup>14</sup> EPA, Energy CO<sub>2</sub> Inventories, "Carbon Dioxide Emissions from Fossil Fuel Combustion 1990-2001." Available at <http://yosemite.epa.gov/OAR/globalwarming.nsf/content/EmissionsStateEnergyCO2Inventories.html>. Accessed December 9, 2005.

<sup>15</sup> American Council for an Energy-Efficient Economy, *Green By Design, Part 5: Tighter Tailpipe Limits*, available at [www.greenercars.com/gbd5.html](http://www.greenercars.com/gbd5.html). Accessed December 8, 2005.

<sup>16</sup> Engelhard Corp., *Engelhard Smog-Eating Technology to Be Featured on BMW Cars in Five States* (press release), 18 July 2002.

<sup>17</sup> Northeast States Center for a Clean Air Future, *Reducing Greenhouse Gas Emissions from Light-Duty Motor Vehicles*, September 2004.

<sup>18</sup> John DeCicco, Feng An, and Marc Ross, *Technical Options for Improving the Fuel Economy of U.S. Cars and Light Trucks by 2010-2015*, American Council for an Energy-Efficient Economy, July 2001.

**The Pennsylvania Clean Vehicles Program:** Given the availability of these pollution reduction technologies, and the need to reduce air pollution and its public health and environmental impacts, many states across the country have adopted a set of standards that will bring cleaner cars and their environmental benefits to the nation’s roads sooner than under weaker federal standards. These more stringent standards were developed by California, and have since been adopted by 8 states—including New York and New Jersey—and are expected to soon be adopted by two more states. Pennsylvania now has the opportunity to join these states, by moving forward with the Pennsylvania Clean Vehicles Program, which implements these standards.

## HISTORY OF THE STANDARDS

The federal Clean Air Act is built upon the premise that every area across the country should reduce air pollution to levels that are protective of public health—as measured against the National Ambient Air Quality Standards. These standards have been set for a number of pollutants, including ozone and nitrogen oxides, and those areas that meet the standards are said to be in “attainment” whereas the areas with pollutant levels higher than the standards are said to be in “non-attainment.” As was mentioned earlier in this testimony, 37 Pennsylvania counties are currently in non-attainment for ozone pollution. The Clean Air Act requires states with non-attainment areas to submit to EPA state-implementation plans (SIPs), which map out how the state will reduce pollution to acceptable levels by no later than 2010.

Section 177 of the Clean Air Act allows states with approved SIPs to adopt California’s stronger motor vehicle standards. In other words, states with air pollution problems have two choices when deciding how to regulate emissions from mobile sources: they can follow the federal standards or the California standards. This choice allows states with entrenched air pollution problems the option of adopting policies proven to reduce pollution in other states, and in states with the most polluted areas, federal standards may not be enough to achieve attainment status under the Clean Air Act.

In 1998, Pennsylvania’s Department of Environmental Protection (DEP) adopted the Pennsylvania Clean Vehicles Program as codified in 25 Pa. Code 121 and 126, and in 1999 EPA incorporated the Pennsylvania Clean Vehicles Program as part of Pennsylvania’s SIP. As outlined in 25 Pa. Code 121 and 126, automobile manufactures were allowed to comply with the National Low Emission Vehicle (NLEV) Program—a voluntary national low emission vehicle program—“as a compliance alternative to the Pennsylvania Clean Vehicles Program requirements” until model year 2006. In model year 2006, all new passenger cars and light trucks sold in Pennsylvania were to meet the requirements of the Pennsylvania Clean Vehicles Program.

## REQUIREMENTS OF THE STANDARDS

The standards within the Pennsylvania Clean Vehicles Program require automobile manufacturers selling cars in Pennsylvania to certify under California’s Low

---

<sup>19</sup> 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.

Emission Vehicle (LEV) and LEV II requirements that their vehicles meet a set of more stringent vehicle emission standards than those required under federal ‘Tier II’ standards, as well as a fleet-wide average for hydrocarbon emissions.<sup>20</sup>

Also, if Pennsylvania were to adopt the Zero-Emission Vehicles (ZEV) requirements that are a part of several states’ standards, automobile manufacturers would have to sell a certain number of advanced technology vehicles, such as the increasingly popular hybrid cars. As outlined in 25 Pa. Code 121 and 126, though, Pennsylvania has opted to not implement the ZEV program.

Regarding the cost of these standards, DEP’s estimates that there is a negligible cost increase for Pennsylvania Clean Vehicles Program vehicles are consistent with what has been determined by the California Air Resources Board (CARB). While this added cost per vehicle will likely increase in 2009, the cars being sold then will likely recoup those additional costs through savings in operating costs—primarily reduced fuel consumption.<sup>21</sup> Vehicles with increased fuel efficiency are in high demand—a recent national survey found that nine out of ten Americans say that U.S. consumers should have access to the more fuel-efficient vehicle models being offered by some U.S. automakers in other countries but not in the United States.<sup>22</sup>

Also, regarding some of the cost estimates that have been put forward in documents from the Alliance of Automobile Manufacturers, it is worth noting that pre-regulatory estimates from both the automobile industry and regulators are typically higher than what the costs end up being. Specifically, in the 1970s, Chrysler estimated that adding catalytic converters to cars and trucks would add \$1,300 (\$2,770 in today’s dollars) to the cost of vehicles. Regulators estimated the cost to be \$755 (\$1,600 in today’s dollars). The actual cost for adding catalytic converters ended up being \$875 to \$1,350 in today’s dollars, meaning Chrysler’s estimate was roughly two to three times too high, and regulators also overestimated the cost. Then, in the 1990s, the automobile industry estimated that California’s LEV standard would add \$788 to the cost of vehicles, while the California Air Resources Board estimated the cost would be \$120. The actual added cost for the LEV standard ended up being roughly \$83, meaning that the automobile industry estimate was almost ten times too high, and even the California Air Resources Board estimate was nearly one and a half times too high.<sup>23</sup>

## BENEFITS OF THE STANDARDS

The Pennsylvania Clean Vehicles Program will result in cleaner vehicles being available in Pennsylvania that will create significantly greater reductions in vehicle air pollution than if Pennsylvania were to opt into the federal Tier II standards. Automobile

---

<sup>20</sup> Union of Concerned Scientists, “Phase-In Requirements for New Emissions Standards” fact sheet. Available at [www.ucsusa.org-schedules.pdf](http://www.ucsusa.org-schedules.pdf). Accessed December 9, 2005.

<sup>21</sup> California Air Resources Board, “Climate Change Emission Control Regulations” fact sheet. Available at [www.arb.ca.gov/cc/factsheets/cc\\_newfs.pdf](http://www.arb.ca.gov/cc/factsheets/cc_newfs.pdf). Accessed December 10, 2005.

<sup>22</sup> Opinion Research Corporation, “American Views on Foreign Fuel-Efficient Vehicles, a Federal 40 MPG Standard and Other Energy Issues: Summary of Survey Findings,” November 28, 2005. Available at [www.40mpg.org/pdfs/CSI\\_40mpg\\_foreign\\_fuel\\_efficiency\\_survey\\_report.pdf](http://www.40mpg.org/pdfs/CSI_40mpg_foreign_fuel_efficiency_survey_report.pdf). Accessed December 10, 2005.

<sup>23</sup> Ronald J. Hwang, Natural Resources Defense Council, “Comments on the CARB Staff Proposal for Motor Vehicle GHG Standards.” Presentation before the California Air Resources Board, September 23-24, 2004.

manufacturers are making cars that meet these standards, and implementation of the Pennsylvania Clean Vehicles Program will ensure that Pennsylvanians will be able to choose from these cleaner vehicles when buying a new car. Rather than limit consumer choice, Pennsylvanians' choice of vehicles will be expanded to include cleaner models of vehicles that might not otherwise be available if the state opts instead into the weaker federal Tier II standards.

With regard to air pollution reduction, DEP estimates that by 2025, the Pennsylvania Clean Vehicles Program standards will result in a 6 to 12 percent decrease in annual volatile organic compound (VOC) emissions, a 9 percent decrease in annual nitrogen oxide emissions, and a 7 to 15 percent decrease in toxic benzene emissions as compared to reductions achieved through the federal Tier II standards.<sup>24</sup> These estimates are consistent with estimates from state agencies in other states that are implementing the California standards. Pennsylvania will also likely see greater reductions in global warming emissions, and consumers would likely save money at the pump due to the increased fuel efficiency of the cars meeting the standards.<sup>25</sup> Lastly, if Pennsylvania were to reverse its earlier opt-out of the Zero-Emission Vehicle (ZEV) program, the state would realize additional benefits in the form of an increased supply of in-demand hybrid vehicles and a decreased dependence on gasoline.

#### CONSEQUENCES OF REJECTING THE PA CLEAN VEHICLES PROGRAM

Given that there is legislation being considered that would bar the state from implementing the Pennsylvania Clean Vehicles Program, the consequences of abandoning this program should also be noted. Specifically, because the Clean Vehicles Program is part of the state's federally enforceable State Implementation Plan (SIP), there is the potential for federal sanctions if Pennsylvania fails to follow the necessary steps to gain approval from EPA for modifying the SIP. Any modification of Pennsylvania's SIP will have to contain a plan for making up for the pollution reductions that would have occurred because of adoption of the Pennsylvania Clean Vehicles Program.

These federal sanctions, as outlined under section 179 of the federal Clean Air Act (42 U.S.C. 7509), can include requiring increased emission reductions from incoming and expanding industries, withholding of federal highway funds, and withholding of air pollution planning and control program grants. These consequences—in addition to the lost air pollution benefits—should be carefully considered in any discussion around proposals to abandon the Pennsylvania Clean Vehicles Program.

**Conclusion:** Despite the progress that has been made in recent years, air pollution is still a serious environmental and public health problem for Pennsylvania. There are many policy handles that can be implemented to help tackle this problem, and one key policy in the effort is the Pennsylvania Clean Vehicles Program—a program whose emissions standards will cut smog-forming pollutants by roughly 10 percent and help the state meet its federal air quality attainment requirements. Rather than limiting vehicle choice, this

---

<sup>24</sup> Pennsylvania Department of Environmental Protection (DEP), "Myths and Facts About the Pennsylvania Clean Vehicles Program." Document received via email communication on December 8, 2005 from Britte Earp, DEP.

<sup>25</sup> California Air Resources Board, "Climate Change Emission Control Regulations" fact sheet. Available at [www.arb.ca.gov/cc/factsheets/cc\\_newfs.pdf](http://www.arb.ca.gov/cc/factsheets/cc_newfs.pdf). Accessed December 10, 2005.

program will increase the clean vehicles that Pennsylvanians can choose from when purchasing a car. And thankfully, this set of standards has already been researched and implemented by other states, including two of our border states. For all of these reasons, PennEnvironment strongly encourages members of the Senate to support the Pennsylvania Clean Vehicles Program, and to oppose any legislative attempts to delay or stop the program's implementation.

Thank you again for the opportunity to testify before you today, and I would be happy to answer any questions at this time.