*Strategic Goal 1:*

# Clean Air *and* Global Climate Change

*Protect and improve the air so it is healthy to breathe, and risks to human health and the environment are reduced. Reduce greenhouse gas intensity by enhancing partnerships with businesses and other sectors.*

## Goal Purpose

Air pollution is a problem for all of us. The average adult breathes more than 3,000 gallons of air every day, and children breathe even more air per pound of body weight. Air pollutants, such as those that form urban smog may remain in the environment for long periods of time and can be carried by the wind hundreds of miles from their origin. Millions of people live in areas where urban smog, very small particles, and toxic pollutants pose serious health concerns. People exposed to certain air pollutants may experience burning in their eyes, an irritated throat, or breathing difficulties. Long-term exposure to certain air pollutants may cause cancer and may damage the immune, neurological, reproductive, and respiratory systems.

Under this goal, EPA implements the Clean Air Act Amendments of 1990 and other environmental laws, and uses innovative approaches, such as emissions trading, to reduce and prevent the harmful emissions from power plants and other large sources, motor vehicles, and fuels that contribute to outdoor air pollution. The Clean Air Act Amendments authorize EPA to set limits on how much of a pollutant can be in the air anywhere in the United States, ensuring that all Americans have the same basic health and environmental protections. While the law allows individual states to establish stronger pollution controls, no state is allowed to have weaker pollution controls than those set for the country as a whole. It makes sense for states to take the lead in carrying out the Clean Air Act, because pollution control problems often require a particular understanding of factors such as local industries, geography, and housing patterns. The U.S. government, through EPA, assists states by providing scientific research, expert studies, engineering designs and money to support state clean air programs.

### Contributing Programs

- Acid Rain Program
- AirNow
- Air Toxics
- Air Toxics Research
- National Ambient Air Quality Standards Development and Implementation
- Mobile Sources
- National Ambient Air Quality Standards (NAAQS) Research
- $NO_x$ Budget Program
- New Source Review
- Regional Haze
- Indoor Air Quality
- Stratospheric Ozone Layer Protection Program
- Sunwise Schools Program
- Radiation Programs
- Voluntary climate programs

Since most people spend a majority of their lives indoors, the quality of indoor air is another major area of concern for EPA. Sources of indoor air pollution include oil, gas, kerosene, coal, wood, and tobacco products and building materials and furnishings, such as asbestos-containing insulation, damp carpets, household cleaning

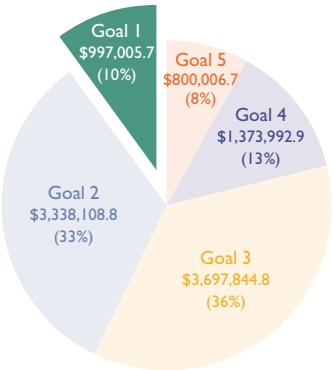
# Goal 1 At a Glance

FY 2006
Annual Performance
Goals (APGs)

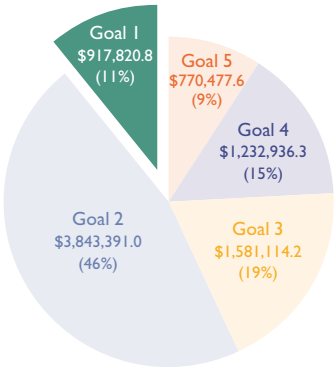
Met = 4 Not Met = 2
Data Available After
November 15, 2005 = 14

(Total APGs = 20)

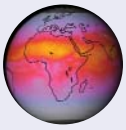
EPA FY 2006 Obligations
(in thousands)



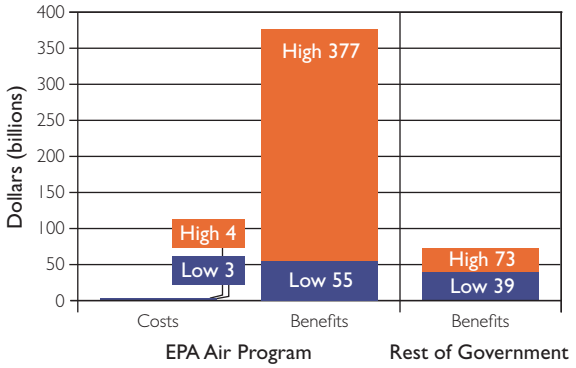

EPA FY 2006 Costs
(in thousands)




## FY 2006 Performance and Resources

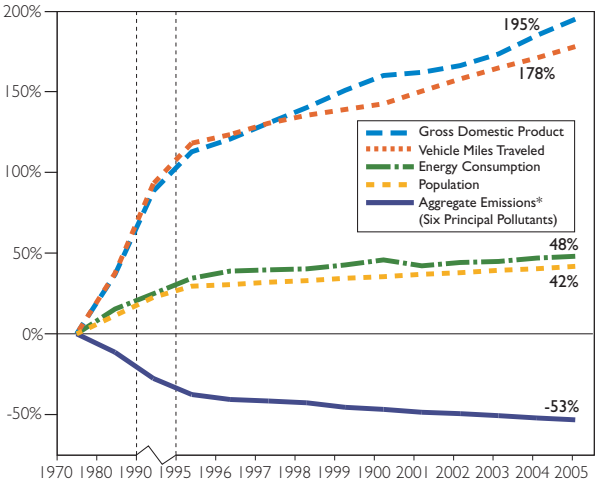
| Strategic Objective | APG Status | Obligations | Costs |
|---|---|---|---|
| **Objective 1-Healthier Outdoor Air** Through 2010, working with partners, protect human health and the environment by attaining and maintaining health-based air-quality standards and reducing the risk from toxic air pollutants. | 7 Data Available After 11/15/06<br>1 Goal Met | $638,212.5 | $574,488.0 |
| **Objective 2-Healthier Indoor Air** By 2008, 22.6 million more Americans than in 1994 will be experiencing healthier indoor air in homes, schools, and office buildings. | 2 Data Available After 11/15/06<br>1 Goal Met | $47,951.6 | $46,862.3 |
|  **Objective 3-Protect the Ozone Layer** By 2010, through worldwide action, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery, and the risk to human health from overexposure to ultraviolet (UV) radiation, particularly among susceptible subpopulations, such as children, will be reduced. | 1 Data Available After 11/15/06 | $18,035.8 | $22,107.7 |
| **Objective 4-Radiation** Through 2008, working with partners, minimize unnecessary releases of radiation and be prepared to minimize impacts to human health and the environment should unwanted releases occur. | 1 Data Available After 11/15/06<br>1 Goal Met<br>1 Goal Not Met | $42,083.1 | $35,278.2 |
| **Objective 5-Reduce Greenhouse Gas Intensity** Through EPA's voluntary climate protection programs, contribute 45 million metric tons of carbon equivalent (MMTCE) annually to the President's 18 percent greenhouse gas intensity improvement goal by 2012. (An additional 75 MMTCE to result from the sustained growth in the climate programs are reflected in the Administration's business-as-usual projection for greenhouse gas intensity improvement.) | 2 Data Available After 11/15/06 | $110,492.7 | $111,873.1 |
| **Objective 6-Enhance Science and Research** Through 2010, provide and apply sound science to support EPA's goal of clean air by conducting leading-edge research and developing a better understanding and characterization of environmental outcomes under Goal 1. | 1 Data Available After 11/15/06<br>1 Goal Met<br>1 Goal Not Met | $140,230.0 | $127,211.5 |
| **Goal 1 Total** | 20 APGs | $997,005.7 | $917,820.8 |

Annual Costs and Benefits of Air Program Compared with Benefits of All Other U.S. Government Regulations Combined
(from Draft 2006 Report to Congress on the Cost and Benefits of Federal Regulations (OMB))




**Note:** Figures are averages for the 10-year period Oct 93 through Sept 03. "High" and "Low" indicate the range of uncertainty in the estimates.

Comparison of Growth Areas and Emissions




products, and lead-based paints. Often, the people who may be exposed to indoor air pollutants for the longest periods of time are also those most susceptible to the effects of indoor air pollution: the young, the elderly, and the chronically ill, especially those suffering from respiratory or cardiovascular disease. EPA provides hotlines, publications, outreach and other initiatives to improve the quality of air in our homes, schools, and offices.

Finally, under Goal 1, EPA works to address climate change. Since the beginning of the industrial revolution, concentrations of several greenhouse gases (including carbon dioxide, methane, and nitrous oxide) have increased substantially. Important questions remain about how much warming will occur, how fast it will occur and how the warming will affect the rest of the climate system. It is for these reasons that the President's climate change program is focused on furthering understanding of the science of climate change and developing new technologies to reduce emissions. EPA's voluntary and incentive-based programs to reduce emissions of greenhouse gases, such as ENERGY STAR, Climate Leaders, and the Landfill Methane Outreach program, are a critical part of President Bush's aggressive plan to reduce greenhouse gas emissions. Under the stratospheric ozone layer protection program, EPA coordinates numerous regulatory programs designed to help the ozone layer, and continues to be active in developing international ozone protection policies.

EPA has made tremendous progress toward achieving clean, healthy air that is safe to breathe. In the chapter that follows, the Agency reports on accomplishments and challenges in addressing national air quality issues, collaborating with partners and stakeholders to solve more localized problems, and working domestically and internationally to protect the Earth's ozone layer and restore the atmosphere.

## In the Years Ahead. . .

EPA's annual performance goals are stepping stones to longer-range results. These results are specified in a series of "Strategic Targets" that lay out the work the Agency intends to accomplish over the next several years to achieve objectives under Goal 1. Meeting these annual performance goals moves us closer to such Strategic Targets as:

By 2007, through maximum achievable control technology (MACT) standards, reduce air toxics emissions from major stationary sources by 1.7 million tons from the 1993 level of 2.7 million tons.

By 2008, approximately 12.8 million additional people will be living in homes with healthier indoor air. These include people living in homes with radon-resistant features, children not being exposed to environmental tobacco smoke, and asthmatics with reduced exposure to indoor asthma triggers.

Through EPA's industrial sector programs, prevent 80 MMTCE in 2012, in addition to the 43 MMTCE prevented annually in 2002.

For a complete list of strategic targets, see EPA's new *2006–2011 Strategic Plan*, available at http://www.epa.gov/ocfo/plan/htm.

# Strategic Objective 1—Healthier Outdoor Air

*Through 2010, working with partners, protect human health and the environment by attaining and maintaining health-based air-quality standards and reducing the risk from toxic air pollutants.*

## OUTDOOR AIR

In February 2006 EPA released an important tool to guide further local, state and federal steps to cut toxic air pollution and build upon the significant emissions reductions achieved since 1990. The second National-Scale Air Toxics Assessment (NATA) is a state-of-the-science screening tool that estimates cancer and other health risks from exposure to air toxics. The results of the assessment will help EPA and state and local air quality regulators identify pollutants and sources of greatest concern and set priorities for addressing them. NATA also will help identify areas where EPA needs to collect additional information to improve the understanding of risks from air toxics exposure. EPA develops NATA in cooperation with state and local environmental agencies, which provide key information about air toxics emissions (http://www.epa.gov/ttn/atw/natamain/).

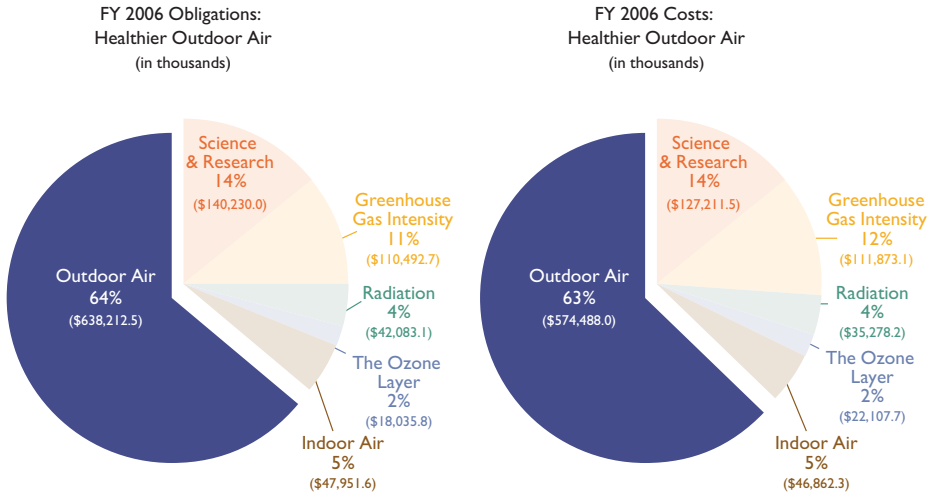
NATA estimates that in most of the United States between 1 and 25 out of 1 million people have an increased likelihood of developing cancer as a result of breathing air toxics from outdoor sources, if they were exposed to 1999 levels over the course of their lifetimes (70 years). The assessment estimates that most urban locations pose an air toxics lifetime cancer risk greater than 25 out of 1 million people, and that risk in transportation corridors and some other locations is greater than 50 out of 1 million people. In comparison, when all causes (including exposure to air toxics) are taken into account, one out of every three Americans (330,000 out of 1 million) will develop cancer during his or her lifetime.

**STRATEGIC OBJECTIVE 1—HEALTHIER OUTDOOR AIR**

| APG # | APG Title | APG Status |
|---|---|---|
| 1.1 | Reduce Exposure to Unhealthy PM Levels—$PM_{10}$ | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.2 | Reduce Exposure to Unhealthy CO, $SO_2$, $NO_2$, Lead | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.3 | Reduce Exposure to Unhealthy Ozone Levels—8 Hour | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.4 | Reduce Exposure to Unhealthy PM Levels—$PM_{2.5}$ | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.5 | Reduce $SO_2$ Emissions | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.6 | Reduce Air Toxic Emissions—Stationary and Mobile Sources | FY 2006 Data Available in 2018 |
| | | FY 2005 Data Available in 2015 |
| | | ✔ Goal Met for FY 2004 |
| | | ✔ Goal Met for FY 2003 |
| | | ✗ Goal Not Met for FY 2002 |
| 1.7 | Reduce Air Toxic Emissions—Leaded Gasoline Phase-out in Africa | ✔ Goal Met for FY 2006 |
| 1.8 | Air Toxicity-Weighted | FY 2006 Data Available in 2007 |

Detailed information on these APGs is provided in Section II.2—Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, pages 134–139. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-4–B-20 at http://www.epa.gov/ocfo/finstatement/2006PAR.

## GOAL 1: OBJECTIVE 1—HEALTHIER OUTDOOR AIR—FY 2006 RESOURCES




## FY 2006 Resources for Program Projects Supporting this Objective*

*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Categorical Grant: State and Local Air Quality Management | $236,021.6 | $211,752.9 |
| Categorical Grant: Tribal Air Quality Management | $11,638.1 | $11,172.3 |
| Clean Air Allowance Trading Programs | $21,837.4 | $20,513.6 |
| Congressionally Mandated Projects | $9,516.2 | $12,035.4 |
| Federal Stationary Source Regulations | $23,553.1 | $23,112.0 |
| Federal Support for Air Quality Management | $102,861.6 | $103,793.9 |
| Federal Support for Air Toxics Program | $26,192.2 | $26,451.1 |
| Federal Vehicle and Fuels Standards and Certification | $63,366.2 | $56,112.2 |
| Homeland Security: Communication and Information | $604.2 | $558.8 |
| Homeland Security: Critical Infrastructure Protection | $6,779.9 | $787.4 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $3,093.8 | $3,773.1 |
| International Capacity Building | $2,364.1 | $2,207.2 |
| Radiation: Protection | $0.0 | $40.0 |
| Administrative Law | $432.0 | $428.2 |
| Alternative Dispute Resolution | $121.9 | $145.3 |
| Central Planning, Budgeting, and Finance | $6,974.8 | $6,481.3 |
| Children and other Sensitive Populations | ($0.6) | $3.8 |
| Civil Rights / Title VI Compliance | $976.9 | $1,051.2 |
| Congressional, Intergovernmental, External Relations | $4,138.5 | $4,460.4 |
| Exchange Network | $3,194.1 | $1,488.7 |
| Facilities Infrastructure and Operations | $46,681.6 | $46,354.9 |
| Acquisition Management | $2,941.2 | $2,931.5 |
| Human Resources Management | $5,506.0 | $5,365.7 |
| Information Security | $576.5 | $541.0 |
| IT / Data Management | $34,694.5 | $14,535.3 |
| Legal Advice: Environmental Program | $4,331.2 | $4,505.7 |
| Legal Advice: Support Program | $1,664.4 | $1,772.0 |
| Audits, Evaluations, and Investigations | $3,924.2 | $4,206.9 |
| Regional Science and Technology | $313.4 | $352.6 |
| Science Advisory Board | $449.4 | $477.8 |
| Small Minority Business Assistance | $189.3 | $231.1 |
| Financial Assistance Grants / IAG Management | $2,153.8 | $2,145.0 |
| Clean School Bus Initiative | $9,478.6 | $3,223.0 |
| Regulatory/Economic-Management and Analysis | $1,642.3 | $1,476.5 |
| TOTAL | $638,212.4 | $574,487.8 |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.

The United States has made significant progress in reducing air toxics from industry, fuels and vehicles, and indoor sources. Since the Clean Air Act was amended in 1990, EPA has issued 96 standards for 174 different types of industrial sources of air toxics, including chemical plants, oil refineries, aerospace equipment manufacturers, and steel mills. The Agency also has issued regulations for 15 categories of smaller sources, such as dry cleaners, commercial sterilizers, secondary lead smelters, and chromium electroplating facilities. When fully implemented, these standards together are projected to reduce annual emissions of air toxics by about 1.7 million tons from 1990 levels. These reductions are not fully reflected in this assessment, however, because a number of these regulations took effect after 1999.

Vehicles and fuels also emit air toxics. By 2020, EPA's fuels and vehicles programs will reduce air toxic emissions by another 2.4 million tons, compared to 1990 levels.

### Explanation of Missed Goals (see Section II.2 for performance results and trend information):

***APG 1.6:*** The Air Toxics program met its overall target to reduce air toxics in FY 2003 and FY 2004 but did not achieve the expected level of progress on all associated annual performance measures. The reduction in air toxics is attributed to three areas: mobile sources; major stationary sources, and area and all other air toxics emissions. The first two categories saw air toxics reductions greater than those projected for FY 2003 and 2004. However, reductions for area and all other air toxics emissions were less than those projected for both years. The reductions in all cases are attributable to rules promulgated by EPA and implemented by states and sources. The Air Toxics program will work with the states and sources to ensure that the toxics reductions meet future projections from the area and all other air toxics emissions sources. Overall, the program remains on track to meet its long-term goal. The Agency will be adjusting the structure and presentation of annual performance goals and measures in future documents.

In FY 2002, EPA achieved a 37.6 percent reduction in air toxics emissions from stationary and mobile sources but did not meet the annual performance goal of 40 percent. The FY 2002 results were calculated based on an updated baseline which provides better emissions inventory data (7.2 million tons versus the 6.0 Million ton baseline used to establish the target).

In 2006, due to continued efforts under the Global campaign for phase out of leaded gasoline, the Agency met the goal of 20 sub-Saharan African countries earlier than anticipated. Due to the early success of the targeted countries, the Agency was able to work and partner with other governments to broaden efforts toward attaining the Global goal, reaching 16 additional sub-Saharan African countries. In addition, Croatia, Indonesia, Turkey, and Syria eliminated lead from gasoline in 2006, affecting

approximately 395 million people. By 2011 EPA plans to achieve leaded gasoline phase outs in 35 more countries worldwide.

In 2006, EPA proposed a rule to establish a national Renewable Fuel Standards Program (RFS Program), which would become effective in 2007. Developed in collaboration with the Departments of Energy (DOE) and Agriculture (USDA) and other stakeholders, the program is designed to encourage blending of renewable fuels into the nation's motor vehicle fuel supply. Specifically, the rule proposes standards for renewable fuel, responsibilities for refiners and other fuel producers, a credit trading system, compliance mechanisms, and recordkeeping and reporting requirements. The proposal also contains preliminary analyses of the economic and environmental impacts of the expanded use of renewable fuels. The RFS Program is expected to increase the volume of renewable fuel required to be blended into gasoline, beginning in 2006 with 4.0 billion gallons and nearly doubling to 7.5 billion gallons by 2012.

## 15th Anniversary of the 1990 Clean Air Act Amendments: Significant Public Health Benefits Achieved

In November 2005, EPA celebrated the 15th anniversary of the signing of the 1990 Clean Air Act Amendments, a landmark piece of legislation that has led to significant environmental and public health benefits across the United States. The Amendments are designed to foster the growth of industry and a strong American economy while improving human health and the environment. To date, the benefits to public health that have resulted from this legislation outweigh costs by four to one.

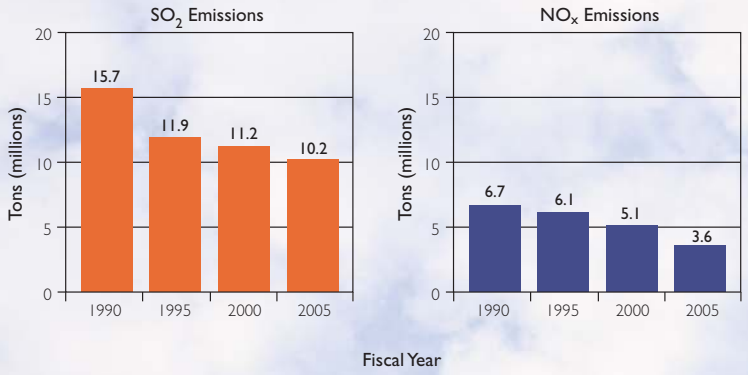
One highlight of the 1990 Amendments was the creation of the Acid Rain Program. According to the Office of Management and Budget, the Acid Rain Program has accounted for the largest quantified human health benefits of any federal regulatory program implemented in the last 10 years, with annual benefits exceeding costs by more than 40 to 1.

The Acid Rain Program's cap-and-trade market approach, the basis for President Bush's proposed Clear Skies legislation, has reduced sulfur dioxide emissions by 5 million tons and nitrogen oxides by 3 million tons from 1990 levels. In addition to providing substantial health benefits, these reductions have led to a decline in acid deposition and fewer acidic lakes.

The Amendments have also generated significant progress improving the quality of the air in most U.S. cities and communities. Over the last 30 years, total emissions of the six principal air pollutants have decreased by more than 50 percent, while the Gross Domestic Product has increased by more than 185 percent.

Under the 1990 Clean Act Amendments:

Reductions in Utility $SO_2$ and $NO_x$ Emissions Under the Acid Rain Program




- From 1990 to 2006 over 67 million more people are breathing healthier air due to a 73 percent reduction in the number of areas that violate the National Ambient Air Quality Standards for carbon monoxide, sulfur dioxide and $PM_{10}$.
- Stricter emissions standards on mobile sources (such as cars and light and heavy trucks) have significantly reduced hydrocarbons, carbon monoxide, nitrogen oxides, and particulate matter.
- Of the 126 areas designated nonattainment for 8-hour ozone in 2003, 10 were redesignated to attainment in 2006, resulting in 1.72 million more people living in areas meeting the ozone NAAQS.
- When programs are fully implemented, the regulation of 188 toxic air pollutants will have reduced toxic air emissions by 1.7 million tons annually since 1990.

In FY 2006, EPA continued to address the challenges of implementing the 1990 Clean Air Act air toxics program, striving to meet court-ordered schedule deadlines while developing data and improving capacity to take risk-based actions. EPA has a large number of rules pertaining to hazardous air pollutants scheduled for completion under different provisions of the Clean Air Act: mobile source emission standards, stationary source emission standards, and risk-based standards. In March 2006, EPA proposed a rule that would reduce air toxics from mobile sources. Once promulgated and fully implemented, this rule is expected to result in the reduction of 350,000 tons of air toxics by 2030.

### ADDITIONAL INFORMATION RELATED TO OBJECTIVE 1

**PROGRAM EVALUATIONS:** Particulate Matter: EPA Has Started to Address the National Academies' Recommendations on Estimating Health Benefits, but More Progress is Needed; Clean Air Act: EPA Should Improve the Management of Its Air Toxics Program. Additional information on these reports is available in the Program Evaluation Section, Appendix A, page A-2 and page A-3.

Monitoring Needed to Assess Impact of EPA's Clean Air Mercury Rule on Potential Hotspots; EPA Can Improve Emissions Factors Development and Management. Additional information on these reports is available in the Program Evaluation Section, Appendix A, page A-4.

**GRANTS:** EPA has a plan to significantly reduce pollution from new diesel engines. It is a two-step approach that first set new emission standards for diesel engines that took effect in 2004. In the second step, EPA will establish even more stringent emission standards for these engines beginning in 2007 in combination with ultra-low sulfur diesel fuel. However, because new vehicles and engines are purchased gradually over time to replace older units EPA has developed the

Voluntary Diesel Retrofit Program to help make a difference in the immediate future. The program will address pollution from diesel construction equipment and heavy-duty vehicles that are currently on the road today. Building on the successes of EPA's regulatory and voluntary efforts to reduce emissions from diesel engines, EPA has created the National Clean Diesel Campaign. Through this campaign, EPA awards grants to communities to retrofit engines and take other measures (fuel switching, idling reduction strategies) to reduce diesel pollution.

The following grants are examples of ones awarded in the past year to reduce diesel pollution. These were awarded in 2006; as the grants are implemented, areas will see less pollution. Areas will include these reductions in their clean air plans for ozone and particulate matter.

- As part of the Blue Skyways Collaborative, EPA Regions 6 and 7 in June announced the award of approximately $1.14 million in grants to assist school districts in reducing pollution from diesel-powered school buses through EPA-verified, EPA-certified, or California Air Resources Board-verified pollution reduction technology.
- As part of the Northeast Diesel Collaborative, EPA Regions 1 and 2, in May announced the award of $1.5 million in grants for projects to reduce diesel emissions.
- EPA's Midwest Clean Diesel Initiative in April, announced approximately $1 million in grants for projects that focus on reducing diesel emissions from the existing fleet of engines.

In 2006, states received $220,261,043 in State and Tribal Assistance grants. These funds allowed states to continue revising their State Implementation Plan to attain the NAAQS for 8-hour ozone and $PM_{2.5}$ and to reduce regional haze. These funds also provided for the continued operation of states' ambient air monitoring networks, including $PM_{2.5}$, air toxic, and visibility monitoring.

In partnership with the Department of Interior, EPA continues to track improvements in visibility in our national parks and other protected areas. The Agency upgraded laboratory equipment to provide more precise measurements of the carbon content of light-absorbing PM and more scientifically robust equations to relate air pollution concentrations to visible visibility range.

Through AIRNow, a greater number of cities started advising the public on a daily basis of the health risks associated with forecasted PM pollution. States continue to use air monitoring data to understand the causes of PM pollution so that they can develop better strategies to reduce it.

For the National Air Toxics Trends Stations, data completeness, precision, and accuracy indicators showed improvement. EPA developed more accurate sampling and analysis methods for two national risk drivers, acrolein and hexavalent chromium. Community-scale air toxics monitoring grants progressed toward completion; individual project goals typically include risk assessment and identifying and characterizing local sources of hazardous air pollutants. Twenty new grants for air toxics monitoring community-scale assessments were awarded to state, local, and tribal agencies across the United States. Air toxics characterization and trends analyses were completed by EPA and made available to the public.

EPA is working in partnership with the Hearth, Patio and Barbecue Association, American Lung Association, and others on the Great American Woodstove Changeout—a national effort to help state, local, and tribal agencies establish campaigns to change old, dirty, "conventional" woodstoves to new, cleaner-burning appliances like masonry heaters and gas, pellet, and EPA-certified woodstoves. Already in place in targeted areas, the Great American Woodstove Changeout is a voluntary effort that can effectively reduce emissions of particulates and air toxics indoors and help bring areas into attainment with the national fine particle standard. As part of each campaign, EPA encourages and supports air pollution control agencies in reaching out to the public to "Burn Clean", that is, to burn only seasoned wood and no garbage. Burn Clean and changeout materials are available at www.epa.gov/woodstoves.

**PART:** *The Air Toxics program was assessed in the 2002 PART process and received a rating of "results not demonstrated." The program was reassessed in the 2004 PART process and received a rating of "adequate." In response to the PART process, the program is conducting follow-up actions which include developing baseline and target information to measure program efficiency.*

*The Acid Rain program was assessed in the 2004 PART process and received a rating of "moderately effective." In response to the PART process, the program is conducting follow-up actions which include analyzing alternative options for an efficiency measure and promoting Clear Skies.*

*The Mobile Sources program was assessed in the 2004 PART process and received a rating of "moderately effective." In response to the PART process, the program is conducting follow-up actions which include collecting data to support the program's efficiency measures.*

*The NAAQS program was assessed in the 2005 PART process in two parts: the Federal NAAQS program and the Air Quality Grants and Permitting program. The Federal NAAQS program received a rating of "adequate." The Air Quality Grants and Permitting program received a rating of "ineffective." In response to the PART process, the program is conducting follow-up actions which include establishing efficiency measures for both the Federal NAAQS and Air Quality Grants and Permitting programs.*

# Strategic Objective 2—Healthier Indoor Air

*By 2008, 22.6 million more Americans than in 1994 will be experiencing healthier indoor air in homes, schools, and office buildings.*

## INDOOR AIR

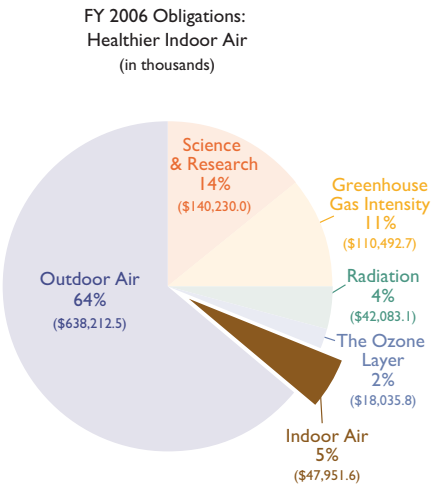
One of EPA's strategic objectives is to provide 22.6 million Americans with healthier indoor air by 2008. To meet this objective, the Agency uses two key strategies: (1) increasing public awareness of actual and potential indoor air risks, so that individuals can take steps to reduce their exposure and (2) relying on partnerships with a variety of organizations to spur action. EPA conducts outreach activities to provide the public and the professional and research communities with essential information about indoor air risks. In partnership with a variety of nongovernmental and professional entities, the Agency develops and disseminates multimedia materials to improve the design, operation, and maintenance of all types of buildings—including schools, homes, and workplaces—and bring about healthier indoor environments.

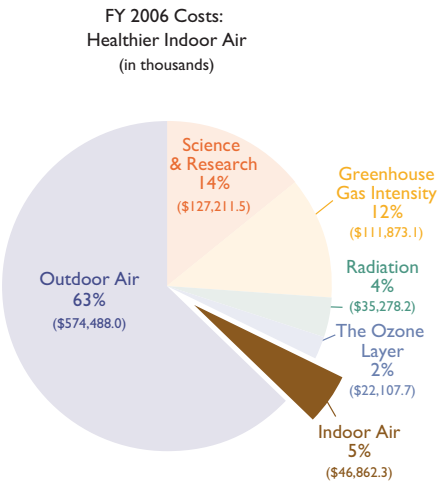
| STRATEGIC OBJECTIVE 2—HEALTHIER INDOOR AIR | | |
|---|---|---|
| APG # | APG Title | APG Status |
| 1.9 | Healthier Residential Indoor Air | FY 2006 Data Available in 2007 |
| | | FY 2005 Data Available in 2007 |
| 1.10 | Healthier Indoor Air in Schools | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.11 | Healthier Indoor Air in Workplaces | ✔ Goal Met for FY 2006 |

Detailed information on these APGs is provided in Section II.2 – Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, pages 140–141. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-20–B-25 at http://www.epa.gov/ocfo/finstatement/2006PAR.

EPA's Indoor Air Quality Tools for Schools (IAQ TfS) Program provides schools with information on improving indoor air problems using straightforward activities and in-house staff. The IAQ TfS Kit, co-sponsored by the National Parent Teacher Association, National Education Association, Association of School Business Officials, American Federation of Teachers, and the American Lung Association, provides individual schools, school districts, educational organizations, and educators with information on best practices, industry guidelines and sample policies, and indoor air quality management plans. By following the TfS guidance, schools can save time and money, enabling them to direct valuable resources toward educating children. Recent survey results indicate that 22 percent of U.S. schools have indoor air quality practices that meet EPA guidelines.

## GOAL 1: OBJECTIVE 2—HEALTHIER INDOOR AIR—FY 2006 RESOURCES



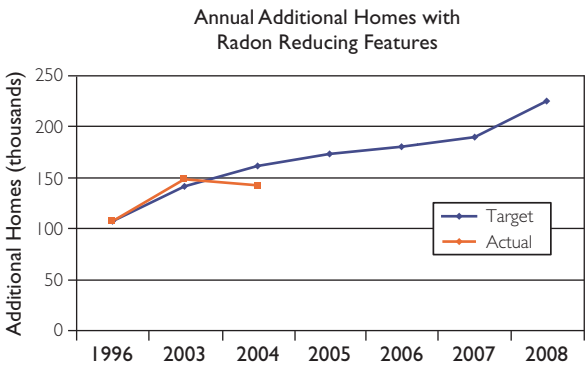




## FY 2006 Resources for Program Projects Supporting this Objective*

*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Categorical Grant: Radon | $7,986.6 | $7,887.5 |
| Categorical Grant: Tribal Air Quality Management | $117.6 | $32.6 |
| Congressionally Mandated Projects | $0.0 | $329.2 |
| Homeland Security: Communication and Information | $48.9 | $45.2 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $235.7 | $303.3 |
| Indoor Air: Asthma Program | $1,565.7 | $4,790.2 |
| Indoor Air: Environment Tobacco Smoke Program | $306.5 | $1,331.1 |
| Indoor Air: Radon Program | $5,471.4 | $6,447.0 |
| Indoor Air: Schools and Workplace Program | $348.5 | $3,459.8 |
| International Capacity Building | $193.8 | $123.0 |
| Research: Air Toxics | ($83.2) | $68.0 |
| Administrative Law | $35.0 | $34.6 |
| Alternative Dispute Resolution | $9.9 | $11.8 |
| Central Planning, Budgeting, and Finance | $730.1 | $676.8 |
| Civil Rights / Title VI Compliance | $76.9 | $83.2 |
| Congressional, Intergovernmental, External Relations | $333.5 | $359.4 |
| Exchange Network | $258.5 | $120.5 |
| Facilities Infrastructure and Operations | $4,953.4 | $4,969.5 |
| Acquisition Management | $251.9 | $250.8 |
| Human Resources Management | $467.3 | $448.8 |
| Information Security | $50.4 | $44.4 |
| IT / Data Management | $3,281.7 | $1,570.9 |
| Legal Advice: Environmental Program | $351.9 | $367.0 |
| Legal Advice: Support Program | $139.6 | $148.8 |
| Audits, Evaluations, and Investigations | $285.7 | $306.2 |
| Regional Science and Technology | $24.7 | $27.2 |
| Science Advisory Board | $36.4 | $38.7 |
| Small Minority Business Assistance | $15.3 | $18.7 |
| Financial Assistance Grants / IAG Management | $441.9 | $438.9 |
| Reduce Risks from Indoor Air | $19,883.2 | $12,009.6 |
| Regulatory/Economic-Management and Analysis | $132.9 | $119.5 |
| TOTAL | $47,951.7 | $46,862.2 |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.



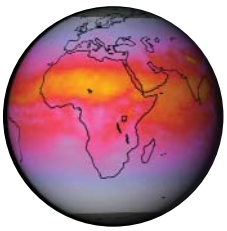

Asthma is a serious, life-threatening respiratory disease that affects more than 20 million Americans. Rates of asthma have risen sharply over the past 30 years, particularly among children aged 5 to 14. Although there is no cure, asthma can be controlled through medical treatment and by managing asthma triggers. EPA's goal is to reduce exposure to asthma triggers and improve the quality of life for 4.9 million people by 2008. Toward this end, EPA provides educational material about the environmental factors—indoor and outdoor—that trigger asthma. In 2006, the Agency held symposia and worked with 2,000 health professionals to increase awareness of asthma triggers. EPA met its goals in FY 2005 and is on track to meet its goals in 2006; results for 2006 will be included in the *FY 2007 Annual Performance Report*.

EPA's indoor radon program promotes voluntary public action to reduce risks from radon in indoor air. Since the mid-1980s, there has been significant progress in reducing the risk from exposure to radon in homes. This progress is the result of continuing collaboration between EPA, citizens, nongovernmental organizations, state and local governments, the radon services and business community, and other federal agencies. EPA recommends that homes with radon levels above the action level be mitigated and that new homes be built radon-resistant. Through 2005, (the last year for which data is available) EPA conservatively estimates that 632,000 homes had an operating mitigation system. In 2005 alone, approximately 93,000 homes were mitigated. These estimates are based on radon mitigation vent fan sales data provided by the major U.S. radon vent fan manufacturers after 1996 and on consumer surveys conducted before 1996. An annual survey by the National Association of Home Builders Research Center estimates that from 1990 to 2004, 1.3 million new homes were built radon-resistant, with approximately 780,000 (60 percent) of those homes located in areas of high radon potential. EPA estimates that the combination of homes with radon mitigation systems and homes built with radon-resistant techniques saves approximately 550 lives annually. Data from partners and other sources indicate that the Agency is on track to meet FY 2006 performance targets.

### ADDITIONAL INFORMATIONAL RELATED TO OBJECTIVE 2:

**GRANTS:** The Indoor Environments Division conducted an assistance grant competition providing $4 million to eligible entities that will conduct demonstrations, training, education and/or outreach projects that seek to reduce exposure to indoor air pollutants in all indoor environments program areas including radon, asthma, schools, and environmental tobacco smoke. The results will be seen in future years in the form of improved communication techniques, educational packages and other outreach.

**PART:** *The Indoor Air Program was assessed in the 2005 PART process and received a rating of "moderately effective." In response to the PART process, the program is conducting follow-up actions which include focusing on efficiency improvements.*



# Strategic Objective 3—Protect the Ozone Layer

*By 2010, through worldwide action, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery, and the risk to human health from overexposure to ultraviolet (UV) radiation, particularly among susceptible subpopulations, such as children, will be reduced.*

## STRATOSPHERIC OZONE

The stratospheric ozone layer protects life on earth from harmful ultraviolet (UV) radiation. Scientific evidence amassed over the past 30 years indicates that the use of chlorofluorocarbons (CFCs) and other halogenated chemicals has destroyed stratospheric ozone.

In FY 2006, EPA furthered the nation's commitment to restoring the ozone layer by tracking, through a marketable permit system, domestic industry compliance with regulatory restrictions on the consumption of ozone-depleting substances (ODS). EPA has been at the forefront of developing and implementing flexible, innovative, and effective approaches to ensure stratospheric ozone layer protection. In FY 2006, EPA launched new partnerships with the air conditioning and refrigeration industries to minimize the use of hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs) in the manufacture of more than 8 million residential and commercial air conditioning units and refrigeration systems annually. EPA also established a new partnership with supermarkets which will ultimately result in significantly reduced ODS emissions and important energy savings while supermarkets upgrade their refrigeration systems.

| STRATEGIC OBJECTIVE 3—PROTECT THE OZONE LAYER | | |
|---|---|---|
| APG # | APG Title | APG Status |
| 1.12 | Restrict Domestic Consumption of Class II HCFCs | FY 2006 Data Available in 2008 |
| | | FY 2005 Data Available in 2007 |

Detailed information on these APGs is provided in Section II.2 – Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, page 142. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-25–B-26 at http://www.epa.gov/ocfo/finstatement/2006PAR.

The participation of developing countries is also essential to ensure timely restoration of the ozone layer. The United States works with its international partners through the Montreal Protocol to reduce CFCs (http://www.epa.gov/air/ozonedep.html).

Progress on the stratospheric ozone program is tracked by monitoring industry reports of compliance with EPA's phase-out regulations and U.S. obligations under the Montreal Protocol. EPA will have information on FY 2006 progress in phasing out ODS during the last quarter of 2007.

Ozone-depleting substances have a long life and were emitted for many years before the international agreements and Clean Air Act requirements were established. Thus, EPA developed the SunWise Program to teach children and their caregivers how to protect themselves from overexposure to the sun. More than 13,000 kindergarten through grade 8 schools and 1,100 informal education institutions have registered to use the SunWise Program since it was launched nationally in May 2000 (http://www.epa.gov/sunwise/).

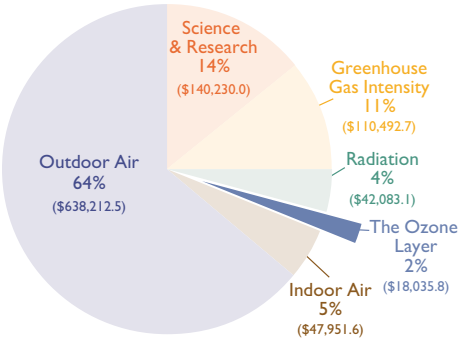
### ADDITIONAL INFORMATION RELATED TO OBJECTIVE 3:

**PART**: *The Stratospheric Ozone program was assessed in the 2004 PART process and received a rating of "adequate." In response to the PART process, the program is conducting follow-up actions which include monitoring intermediate goals (such as HCFC consumption) in the near term. (The program has long-term outcome goals that are much further out in the future, for example, reduced melanoma skin cancers in 2165).*

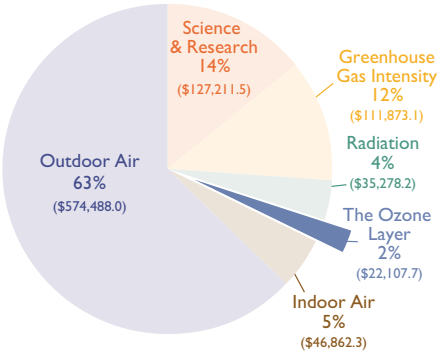
**Web Links:**
http://www.epa.gov/air/oaqps/index.html.

## GOAL 1: OBJECTIVE 3—PROTECT THE OZONE LAYER—FY 2006 RESOURCES

FY 2006 Obligations:
Protect the Ozone Layer
(in thousands)




FY 2006 Costs:
Protect the Ozone Layer
(in thousands)




## FY 2006 Resources for Program Projects Supporting this Objective*

*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Homeland Security: Communication and Information | $12.2 | $11.3 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $93.5 | $121.1 |
| Stratospheric Ozone: Domestic Programs | $5,455.7 | $6,170.7 |
| Stratospheric Ozone: Multilateral Fund | $8,582.9 | $12,577.4 |
| Administrative Law | $8.7 | $8.6 |
| Alternative Dispute Resolution | $2.5 | $2.9 |
| Central Planning, Budgeting, and Finance | $322.6 | $296.8 |
| Civil Rights / Title VI Compliance | $14.7 | $16.0 |
| Congressional, Intergovernmental, External Relations | $50.2 | $57.1 |
| Exchange Network | $64.3 | $30.0 |
| Facilities Infrastructure and Operations | $1,536.0 | $1,573.1 |
| Acquisition Management | $84.6 | $84.2 |
| Human Resources Management | $149.7 | $142.3 |
| Information Security | $19.7 | $17.0 |
| IT / Data Management | $1,200.1 | $544.5 |
| Legal Advice: Environmental Program | $85.7 | $91.6 |
| Legal Advice: Support Program | $38.1 | $41.6 |
| Audits, Evaluations, and Investigations | $109.8 | $117.8 |
| Regional Science and Technology | $2.5 | $4.8 |
| Science Advisory Board | $9.1 | $9.6 |
| Small Minority Business Assistance | $3.8 | $4.7 |
| Financial Assistance Grants / IAG Management | $156.2 | $155.0 |
| Regulatory/Economic-Management and Analysis | $33.1 | $29.7 |
| **TOTAL** | **$18,035.7** | **$22,107.8** |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.

# Strategic Objective 4—Radiation

*Through 2008, working with partners, minimize unnecessary releases of radiation and be prepared to minimize impacts to human health and the environment should unwanted releases occur.*

## RADIATION

EPA supports safe and environmentally sound radioactive waste management by maintaining certification and oversight responsibilities for DOE waste disposal activities at the Waste Isolation Pilot Plant (WIPP); providing technical support to the Nuclear Regulatory Commission (NRC) in applying pending standards at Yucca Mountain; coordinating with other federal agencies (including NRC and DOE) and states to develop mechanisms for controlling industrial materials with a radioactive component; and developing waste management regulations to facilitate the disposal of low-activity mixed waste by combining existing RCRA requirements with traditional radiological waste management components.

In 2006, DOE sent 45,000 drums of radioactive waste that met EPA specifications to the Waste Isolation Pilot Plant facility.

In FY 2006, EPA implemented its strategy to address Technologically Enhanced Naturally-Occurring Radioactive Material issues in cooperation with other federal Agencies, states, tribes, industry, and environmental groups. When making environmental protection decisions, EPA seeks the most extensive public participation possible. The Agency believes that open dialogue and public participation in both technical and non-technical matters improve the regulatory process and foster sound public policy decisions.

EPA is developing a nationwide, continuously operating environmental radiation monitoring system. RadNet tracks national and regional levels of ambient radiation and identifies the degree and extent of contamination in the event of an emergency. By monitoring potential impact to population and public health, RadNet supports EPA's role in incident assessment. RadNet's nearly real-time data allows for the provision of information within a very short time (approximately 1-2 hours).

EPA's Radiological Emergency Response Team (RERT) systematically trains its members so they have the knowledge, skills, equipment,

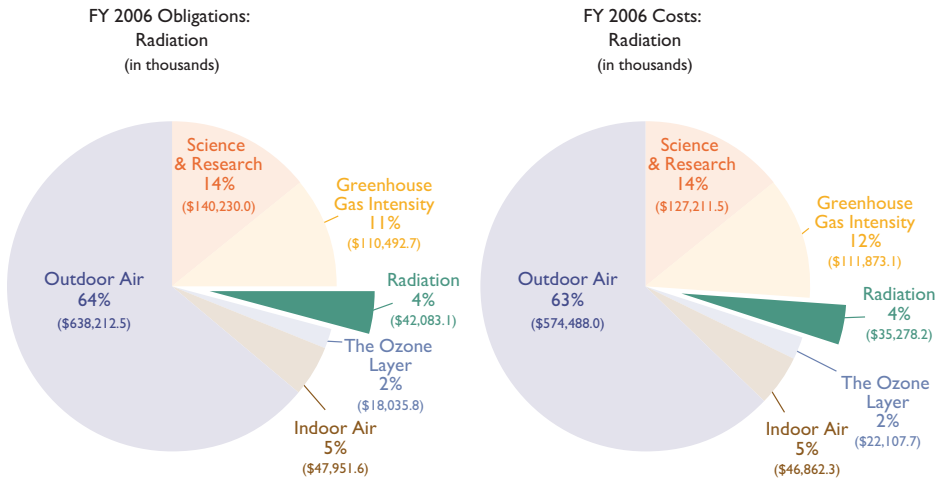
| STRATEGIC OBJECTIVE 4—RADIATION | | |
|---|---|---|
| APG # | APG Title | APG Status |
| 1.13 | Build National Radiation Monitoring System | ✗ Goal Not Met for FY 2006 |
| 1.14 | Homeland Security—Readiness & Response | FY 2006 Data Available in December 2006 |
| | | ✔ Goal Met for FY 2005 |
| 1.15 | Ensure WIPP Safety | ✔ Goal Met for FY 2006 |

Detailed information on these APGs is provided in Section II.2 – Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, pages 142–144. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-27–B-29 at http://www.epa.gov/ocfo/finstatement/2006PAR.

### Explanation of Missed Goals (see Section II.2 for performance results and trend information):

***APG 1.13:*** In FY 2006, EPA placed an order for 41 RadNet monitors, not the originally planned purchase of 51. The reduced order is based upon a revised installation schedule that allows for delays resulting from technical issues with several of the first installed monitors. EPA also must ensure that a site is fully functional (monitor pad, land-line and cell service, electricity, and identified operator) before a monitor is shipped from the manufacturer to be installed.

## GOAL 1: OBJECTIVE 4—RADIATION—FY 2006 RESOURCES




## FY 2006 Resources for Program Projects Supporting this Objective*

*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Homeland Security: Communication and Information | $58.8 | $53.7 |
| Homeland Security: Preparedness, Response, and Recovery | $5,102.5 | $2,532.5 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $416.5 | $525.7 |
| Radiation: Protection | $15,739.0 | $14,951.7 |
| Radiation: Response Preparedness | $5,667.8 | $5,780.8 |
| Administrative Law | $45.0 | $44.6 |
| Alternative Dispute Resolution | $14.7 | $16.3 |
| Central Planning, Budgeting, and Finance | $585.7 | $534.2 |
| Civil Rights / Title VI Compliance | $78.4 | $85.1 |
| Congressional, Intergovernmental, External Relations | $275.8 | $311.0 |
| Exchange Network | $318.4 | $157.4 |
| Facilities Infrastructure and Operations | $5,259.2 | $5,117.9 |
| Acquisition Management | $820.6 | $753.6 |
| Human Resources Management | $753.0 | $730.2 |
| Information Security | $85.7 | $81.8 |
| IT / Data Management | $5,193.0 | $1,905.0 |
| Legal Advice: Environmental Program | $418.7 | $443.0 |
| Legal Advice: Support Program | $172.3 | $187.7 |
| Audits, Evaluations, and Investigations | $208.8 | $203.0 |
| Regional Science and Technology | $14.6 | $25.8 |
| Science Advisory Board | $46.8 | $49.7 |
| Small Minority Business Assistance | $19.7 | $24.1 |
| Financial Assistance Grants / IAG Management | $617.3 | $609.6 |
| Regulatory/Economic-Management and Analysis | $171.0 | $153.7 |
| **TOTAL** | **$42,083.3** | **$35,278.1** |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.

and support systems needed to respond to emergencies involving radioactive materials. The program achieves this goal through preparedness activities including developing and streamlining response plans and procedures, providing guidance and training to first responders, and testing plans and procedures during exercises.

### ADDITIONAL INFORMATION FOR OBJECTIVE 4:

**PART:** *OMB will assess the Radiation program in the 2007 PART process and results will be included in the FY 2009 President's Budget.*

**Web Links:** http://www.epa.gov/air/oaqps/index.html

# Strategic Objective 5—Reduce Greenhouse Gas Intensity

*Through EPA's voluntary climate protection programs, contribute 45 million metric tons of carbon equivalent (MMTCE) annually to the President's 18 percent greenhouse gas intensity improvement goal by 2012. (An additional 75 MMTCE to result from the sustained growth in the climate programs are reflected in the Administration's business-as-usual projection for greenhouse gas intensity improvement.)*

## CLIMATE CHANGE

In February 2002, President Bush announced a new approach to global climate change designed to harness the power of the marketplace and technological innovation. The President committed America to cut greenhouse gas intensity by 18 percent by 2012.

| STRATEGIC OBJECTIVE 5—REDUCE GREENHOUSE GAS INTENSITY | | |
|---|---|---|
| APG # | APG Title | APG Status |
| 1.16 | Reduce Greenhouse Gas Emissions | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |
| 1.17 | Reduce Energy Consumption | FY 2006 Data Available in 2007 |
| | | ✔ Goal Met for FY 2005 |

Detailed information on these APGs is provided in Section II.2 – Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, pages 144–146. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-29–B-33 at http://www.epa.gov/ocfo/finstatement/2006PAR.

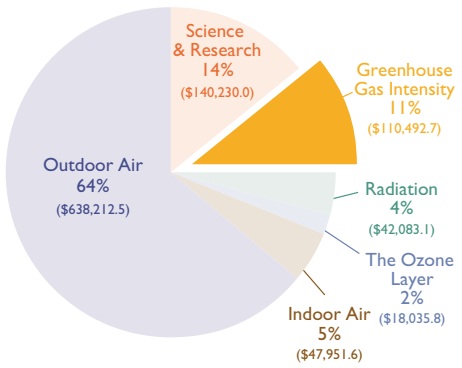
In support of the President's goal, EPA's climate protection programs overall will promote the avoidance of 162 million metric tons of carbon equivalent (MMTCE) annually by 2012, up from 58 MMTCE in 2002. Of this annual additional 104 MMTCE prevented, 24 MMTCE will be attributable to the sustained growth of many climate programs and are reflected in the Administration's business-as-usual projection for greenhouse gas intensity improvement; the remaining 80 MMTCE will contribute to attaining the President's goal of 18 percent greenhouse gas intensity improvement.

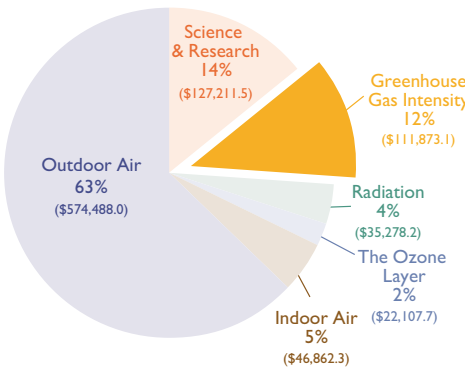
At the core of EPA's climate change efforts are government-industry partnership programs designed to capitalize on the opportunities that consumers, businesses, and organizations have for investing in efficient equipment, policies, and practices. While thousands of equipment purchases are made every day, consumers often select the least efficient equipment, thereby committing themselves to higher energy bills for 10 to 20 years at a time, depending upon the life of the equipment. At the same time, organizations often overlook the investment opportunities and competitive advantages represented by more efficient equipment.

EPA manages a number of efforts, such as ENERGY STAR and transportation efficiency programs, to remove marketplace barriers and deploy technology faster in the residential, commercial, transportation, and industrial sectors of the economy. EPA programs do not provide financial subsidies. Instead, they work by overcoming to energy efficiency: lack of clear, reliable information on technology opportunities; lack of awareness of energy-efficient products and services; low incentives to manufacturers for efficiency research and development; and lack of awareness about more energy-efficient transportation choices.

EPA's climate protection programs reduced emissions of carbon dioxide ($CO_2$) and other potent greenhouse gases, such as methane and perfluorocarbons (PFCs). In addition, EPA's climate protection programs will deliver substantial energy and environmental

## GOAL 1: OBJECTIVE 5—REDUCE GREENHOUSE GAS INTENSITY—FY 2006 RESOURCES




## FY 2006 Resources for Program Projects Supporting this Objective*

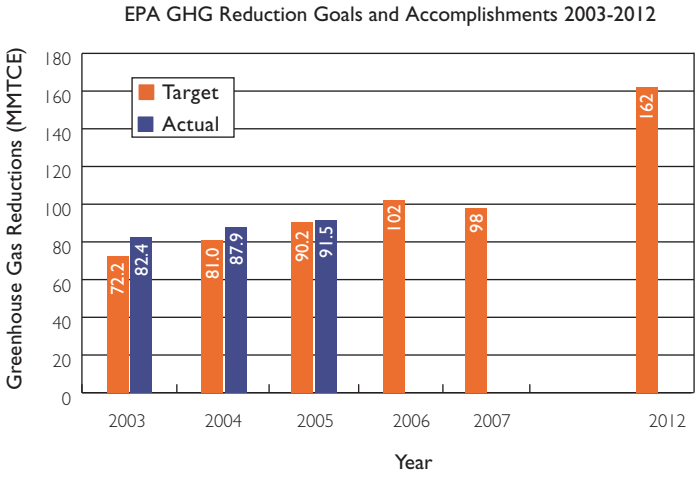
*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Climate Protection Program | $85,882.0 | $91,087.5 |
| Congressionally Mandated Projects | $0.0 | $94.6 |
| Homeland Security: Communication and Information | $79.3 | $73.3 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $571.2 | $739.2 |
| Administrative Law | $56.7 | $56.2 |
| Alternative Dispute Resolution | $16.0 | $19.1 |
| Central Planning, Budgeting, and Finance | $1,980.7 | $1,822.9 |
| Civil Rights / Title VI Compliance | $101.3 | $109.8 |
| Congressional, Intergovernmental, External Relations | $364.6 | $408.5 |
| Exchange Network | $419.1 | $195.4 |
| Facilities Infrastructure and Operations | $9,747.4 | $9,957.0 |
| Acquisition Management | $525.2 | $522.8 |
| Human Resources Management | $937.8 | $891.9 |
| Information Security | $120.3 | $104.1 |
| IT / Data Management | $7,405.7 | $3,398.0 |
| Legal Advice: Environmental Program | $559.8 | $595.9 |
| Legal Advice: Support Program | $243.6 | $264.9 |
| Audits, Evaluations, and Investigations | $668.1 | $716.3 |
| Regional Science and Technology | $20.0 | $33.4 |
| Science Advisory Board | $59.0 | $62.7 |
| Small Minority Business Assistance | $24.8 | $30.3 |
| Financial Assistance Grants / IAG Management | $494.6 | $495.6 |
| Regulatory/Economic-Management and Analysis | $215.5 | $193.8 |
| **TOTAL** | **$110,492.7** | **$111,873.2** |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.

benefits over the next decade. As many of the investments promoted through EPA's climate programs involve energy-efficient equipment with lifetimes of decades or more, the investments made to date will continue to deliver environmental and economic benefits through 2012 and beyond. EPA currently estimates that, based on investments in equipment already made due to EPA's programs, organizations and consumers across the country will net savings of about $100 billion and reduce greenhouse emissions by more than 700 MMTCE over the next ten years (cumulative reductions based upon estimated 2004 achievements). These programs continue to offer highly cost effective approaches for delivering environmental benefits across the country.

EPA's international activities help provide developing and industrialized countries with greater information and the increased technical capacity they need to implement emissions reduction policies and climate protection programs. In addition, EPA works with state and local governments interested in technical, educational, and outreach assistance for clean energy projects that reduce carbon emissions.




With the help of ENERGY STAR, in FY 2005 alone Americans prevented 63 MMTCE of greenhouse gas emissions, up from 57 MMTCE in 2004. Around 2 billion ENERGY STAR-qualified products have been purchased; more than 500,000 new ENERGY STAR homes have been built; and more than 26,000 office buildings, schools, supermarkets, hotels, and other types of commercial buildings have benchmarked their energy use. ENERGY STAR partners, which include Fortune 500 companies and small businesses, commit to superior energy management and investing in energy efficient technologies and practices. For example, a retailer reduced energy use by 25 percent in more than 1,200 of its stores, and a property management firm improved energy efficiency of more than 22 million square feet, saving more than $2 million annually.[1]

Cars, trucks, aircraft, and other components of the nation's transportation system emit about one-third of total U.S. greenhouse gas emissions. Transportation policies, plans, and choices have an immense effect on greenhouse gas emissions, particularly on carbon production. Although technology and market-oriented measures will make a major contribution toward reducing emissions, efforts to reduce vehicle miles of travel are also critical for achieving EPA's greenhouse gas emission reduction goals. In FY 2006, EPA actively supported regional, state, and community voluntary efforts that encourage additional travel choices and alternatives to single-occupancy vehicle driving.

The Agency met the aggregate greenhouse gas goal for FY 2005 but did not achieve the expected level of progress on all associated annual performance measures. The Climate Change program develops and aggregate, overall goal based on expected progress in each of the program sectors. In FY 2005, while meeting the overall target for greenhouse gas reductions, two areas were short of their contributions to the overall target: Industrial Methane Outreach Programs and Industrial HFC/PFC programs. We will work with our partners in those areas in FY 2006 and beyond to ensure that they continue to meet the programmatic goals for these sectors. The Agency will be adjusting the structure and presentation of annual performance goals and measures in future documents.

## ADDITIONAL INFORMATION RELATED TO OBJECTIVE 5:

**PROGRAM EVALUATIONS:** Climate Change—EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs. Additional information on this report is available in the Program Evaluation Section, Appendix A, page A-5.

**PART:** *The Climate Change program was assessed in the 2004 PART process and program received a rating of "adequate." In response to the PART process, the program is conducting follow-up actions which include implementing sector-wide efficiency measures (for the building, industry, and transportation sectors) to inform management and planning decisions. The program is also developing performance measures for the Clean Automotive Technology Program.*

**Web Links:**
http://www.epa.gov/air/oaqps/index.html.

# Strategic Objective 6—Enhance Science and Research

*Through 2010, provide and apply sound science to support EPA's goal of clean air by conducting leading-edge research and developing a better understanding and characterization of environmental outcomes under Goal 1.*

## ENHANCING SCIENCE AND RESEARCH

EPA's research program continues to conduct leading-edge research to provide and apply sound science to support EPA's goals for clean air. In 2006, EPA's clean air research program provided results that will help in implementing future ambient particle standards by focusing emission reduction efforts on the sources with the largest health impacts. One significant finding indicated that hospital admissions among the elderly for cause-specific cardiovascular and respiratory diseases were region-specific, based on a comparison of the eastern and western United States.[2] Differentiation in particulate matter (PM) composition also appeared to be an important factor in these hospital admissions. Another study, which used ambient PM collected from different locations across the country, linked specific particle attributes with toxicity.[3 4 5] Because these components could be traced back to specific types of PM sources (for example, mobile or coal), researchers were able to estimate the relative source contributions to the observed toxicity.

In 2006, the Clean Air Research Program also supported EPA's recent review of the Particulate Matter National Ambient Air Quality Standards (PM NAAQS). Research targeted identified knowledge gaps and yielded a series findings that will assist with NAAQS implementation. A new Community Multi-scale Air Quality model for atmospheric PM/ozone predictions is now more accurate and processes more rapidly, allowing better compliance assessments and State Implementation Plan development. Similarly, EPA has transferred control technologies that aid in emission reductions and other mitigations to clients for application and field deployment.

| STRATEGIC OBJECTIVE 6—ENHANCE SCIENCE AND RESEARCH | | |
|---|---|---|
| APG # | APG Title | APG Status |
| 1.18 | Clean Automotive Technology | FY 2006 Data Available in 2007 |
| 1.19 | PM Effects Research | ✗ Goal Not Met for FY 2006 |
| 1.20 | PM Measurement Research | ✔ Goal Met for FY 2006 |

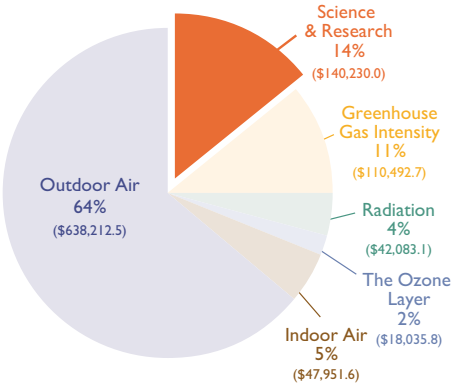
Detailed information on these APGs is provided in Section II.2 – Annual Performance Goals and Measures: Detailed Results FY 2003–FY 2006, pages 146–148. Additionally, the data that EPA has used to measure its performance are described in the "Supplemental Information" to this report, provided on the Internet. See pages B-33–B-34 at http://www.epa.gov/ocfo/finstatement/2006PAR.

### Explanation of Missed Goals (see Section II.2 for performance results and trend information):

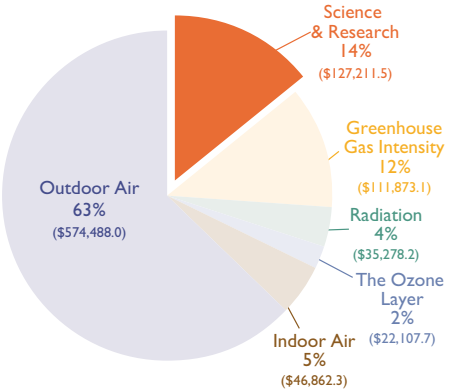
***APG 1.19***: EPA set an ambitious goal of completing 100 percent of its key research actions toward the long-term goal of reducing uncertainty in the science that supports standard-setting and air quality management decisions. Due to the difficulties in predicting research findings, only 94 percent of planned actions were completed in 2006.

## GOAL 1: OBJECTIVE 6—ENHANCE SCIENCE AND RESEARCH

FY 2006 Obligations:
Enhance Science and Research
(in thousands)




FY 2006 Costs:
Enhance Science and Research
(in thousands)




## FY 2006 Resources for Program Projects Supporting this Objective*

*Program/Projects are EPA's fundamental unit for budget execution and cost accounting, and they serve as the foundation for the Agency's budget. Frequently, program/projects support multiple APGs and objectives. This table lists the program/projects and associated resources that support this objective.*

| PROGRAM PROJECT | FY 2006 OBLIGATIONS | FY 2006 COSTS |
|---|---|---|
| Clean Air Allowance Trading Programs | $3,744.7 | $3,917.5 |
| Climate Protection Program | $20,921.9 | $19,334.6 |
| Congressionally Mandated Projects | $6,616.2 | $5,462.2 |
| Federal Support for Air Quality Management | $375.6 | $430.2 |
| Federal Support for Air Toxics Program | $210.4 | $391.7 |
| Homeland Security: Communication and Information | $128.1 | $118.5 |
| Homeland Security: Protection of EPA Personnel and Infrastructure | $724.0 | $861.8 |
| Radiation: Protection | $1,417.2 | $1,532.0 |
| Research: Air Toxics | $19,269.0 | $16,870.8 |
| Research: Particulate Matter | $11,450.0 | $29,565.9 |
| Research: Troposphere Ozone | $952.7 | $2,312.5 |
| Administrative Law | $91.6 | $90.8 |
| Alternative Dispute Resolution | $25.8 | $30.8 |
| Central Planning, Budgeting, and Finance | $2,678.4 | $2,462.5 |
| Civil Rights / Title VI Compliance | $152.7 | $166.0 |
| Congressional, Intergovernmental, External Relations | $515.2 | $587.0 |
| Exchange Network | $677.1 | $315.6 |
| Facilities Infrastructure and Operations | $2,770.6 | $2,449.5 |
| Acquisition Management | $901.9 | $897.7 |
| Human Resources Management | $1,530.1 | $1,514.0 |
| Information Security | $191.8 | $199.4 |
| IT / Data Management | $8,445.4 | $1,464.3 |
| Legal Advice: Environmental Program | $899.1 | $962.4 |
| Legal Advice: Support Program | $402.8 | $439.9 |
| Audits, Evaluations, and Investigations | $916.7 | $982.9 |
| Regional Science and Technology | $24.0 | $49.4 |
| Science Advisory Board | $95.2 | $101.2 |
| Small Minority Business Assistance | $40.1 | $49.0 |
| Financial Assistance Grants / IAG Management | $442.5 | $445.6 |
| Research: NAAQS | $53,270.9 | $32,893.0 |
| Regulatory/Economic-Management and Analysis | $348.2 | $313.0 |
| **TOTAL** | **$140,229.9** | **$127,211.7** |

*Resources associated with Program Projects may not match the Goal and Objective obligations and costs exactly due to rounding.

### ADDITIONAL INFORMATION RELATED TO OBJECTIVE 6:

**PART:** *The NAAQS Research program was first assessed in the 2003 PART process and received a rating of "results not demonstrated." The program was reassessed in the 2005 PART process and received a rating of "adequate." In response to the PART process, the program is conducting follow-up actions which include a commitment to convene annual independent review meetings to assess the state of the science and ensure progress toward program goals. To this end, the NAAQS Research program has initiated a plan for annual update meetings and identified five discipline areas in which to contract experts.*

**Web Links:**
http://www.epa.gov/pmresearch/.

## EPA Partners with Industry to Improve Fuel Economy

EPA and the United Parcel Service (UPS) partnered to develop a first-of-its-kind delivery truck using EPA-patented hydraulic hybrid technology. With the breakthrough technology onboard, the UPS truck can increase fuel efficiency by 60 to 70 percent in urban driving. It also lowers greenhouse gas emissions by reducing carbon dioxide (CO2) by 40 percent, compared to conventional UPS diesel delivery trucks. EPA estimates that upfront costs for the hybrid components in a typical delivery vehicle can be recouped in fewer than 3 years, and the net savings over the vehicle's lifespan could exceed $50,000, assuming current fuel prices. The new vehicle features a full hydraulic hybrid powertrain and a unique hydraulic hybrid propulsion system integrated with the drive axle; energy saved when applying the brakes is reused to help accelerate the vehicle. Following a road tour of EPA regional offices, the vehicle will be delivering UPS packages across Michigan in summer 2007. This partnership is occurring through Cooperative Research and Development Agreements, which Congress established to facilitate technology transfer of patented inventions from national laboratories to industry and the marketplace. For more information about other such partnerships, see http://www.epa.gov/otaq/technology/recentdevelopments.htm).

This innovative technology is simple. The main components in HHVs are:

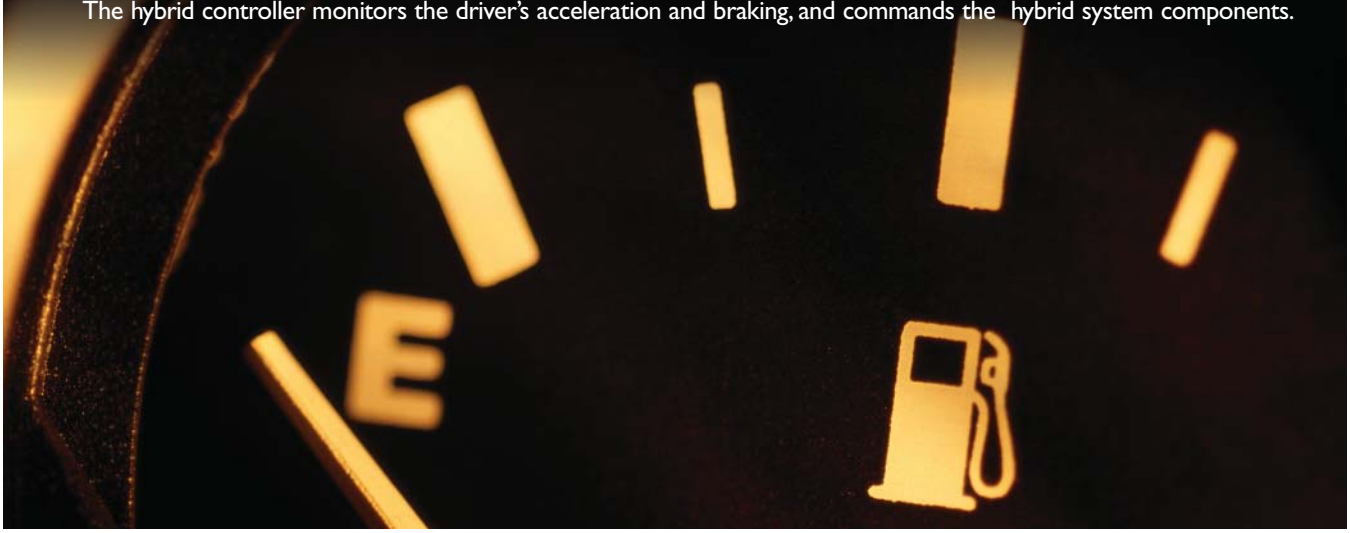
The high pressure accumulator stores energy as a battery would in a hybrid electric vehicle using hydraulic fluid to compress nitrogen gas.

The low pressure reservoir stores the low pressure fluid after it has been used by the pump/motor.

The rear drive pump/motor converts the pressure from the hydraulic fluid into rotating power for the wheels, and recovers braking energy which is stored in the high pressure accumulator.

The engine pump/motor pressurizes and transfers hydraulic fluid to the rear drive pump/motor and/or high pressure accumulator.

The hybrid controller monitors the driver's acceleration and braking, and commands the hybrid system components.




## NOTES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2. Dominici, F.; Peng, R. D.; Bell, M. L.; Pham, L.; McDermott, A.; Zeger, S. L.; Samet, J. L. (2006) Fine particulate air pollution and hospital admission for cardiovascular and respiratory diseases. J. Am. Med. Assoc. JAMA 295: 1127-1134.
3. Laden, F Schwartz, J Speizer, FE Dockery, DW, Reduction in Fine Particulate Air Pollution and Mortality: Extended Follow-up of the Harvard Six Cities Study. Am J Respir Crit Care Med, 2006.
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