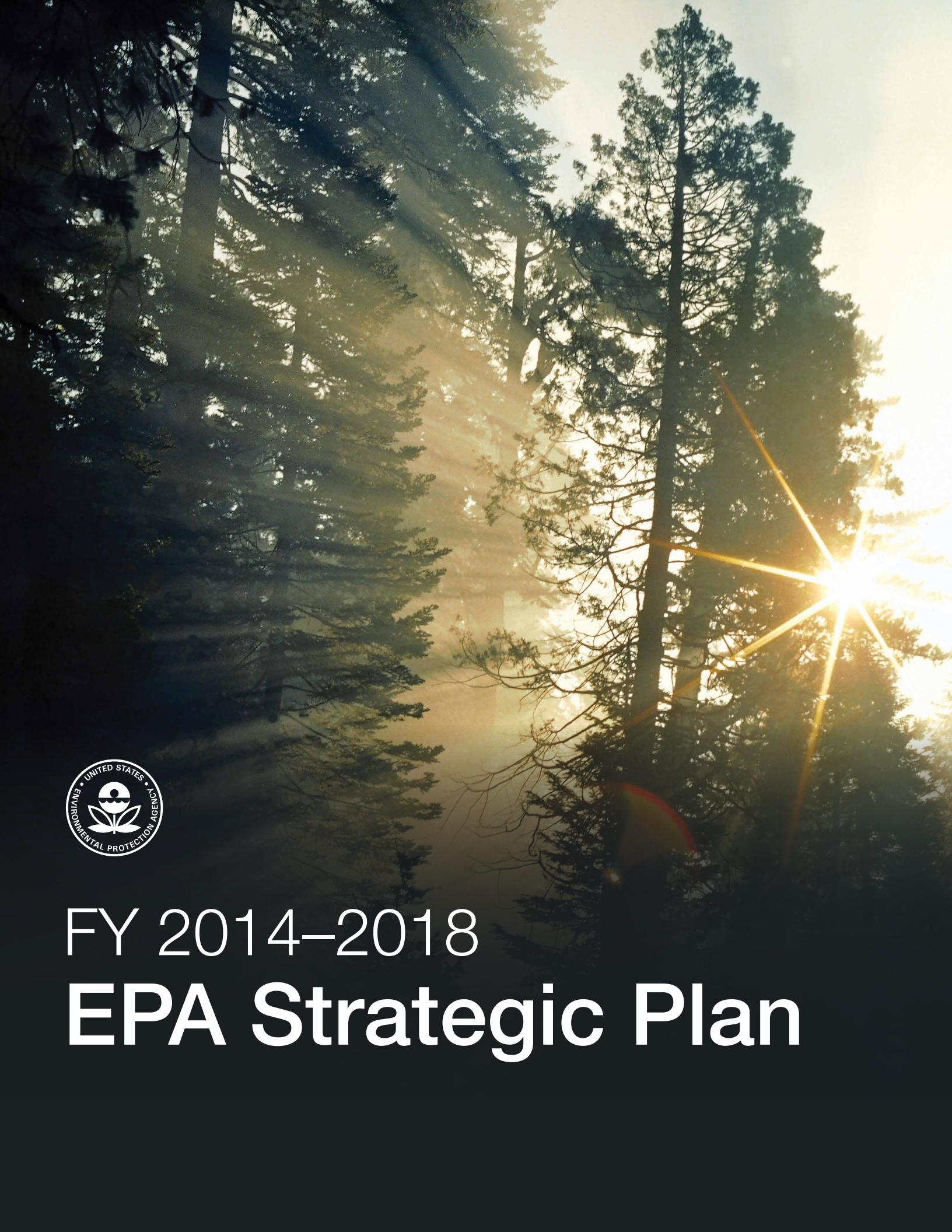

FY 2014–2018

EPA Strategic Plan

EPA's Mission

To Protect Human Health and the Environment

Strategic Goals

Goal 1: Addressing Climate Change and Improving Air Quality

Goal 2: Protecting America's Waters

Goal 3: Cleaning Up Communities and Advancing Sustainable Development

Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution

Goal 5: Protecting Human Health and the Environment by Enforcing Laws and Assuring Compliance

Cross-Agency Strategies

Working Toward a Sustainable Future

Working to Make a Visible Difference in Communities

Launching a New Era of State, Tribal, Local, and International Partnerships

Embracing EPA as a High-Performing Organization

Core Values

Science, Transparency, Rule of Law

Fiscal Year 2014–2018 EPA Strategic Plan

April 10, 2014

U.S. Environmental Protection Agency
Washington, D.C. 20460

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Administrator's Message

I am pleased to present the U.S. Environmental Protection Agency's FY 2014–2018 Strategic Plan, *which charts our course for protecting public health and the environment in every community in America during the next four years. While we have made significant progress during the past few years, we are facing increasingly complex environmental and human-health concerns at a time of continuing fiscal constraints. This poses both challenges and opportunities for us. As Administrator, I am committed to engaging closely with states, tribes, local partners, federal agencies and business and industry leaders in the most pragmatic, collaborative and flexible way possible to achieve environmental benefits for our children and future generations.*

I envision a new era of partnerships for the U.S. environmental-protection enterprise in which the EPA will work collaboratively with a broad range of stakeholders to improve the health of our families and protect the environment. Our priorities will include:

- Addressing climate change and improving air quality;
- Reinvigorating water-quality-improvement efforts, including support for green infrastructure;
- Taking action on toxics and strengthening chemical safety;
- Enhancing the livability and economic vitality of neighborhoods in and around brownfield sites;
- Aligning and incentivizing partnerships that spur technological innovations, reducing costs and pollution; and
- Advancing research efforts to provide relevant, robust and transparent scientific data to support the agency's policy and decision-making needs.

We must focus on the environmental and public-health issues that matter most to the American people and strive to make a visible difference. During this year, which marks the 20th anniversary of Executive Order 12898 on Environmental Justice, we must continue our focus on urban, rural and economically disadvantaged communities to ensure that everyone—regardless of age, race, economic status or ethnicity—has access to clean water, clean air and the opportunity to live, work and play in healthy communities.

Moving beyond the foundation of traditional regulatory approaches to environmental protection, we are seeking to build sustainability into our day-to-day operations. Today's environmental problems require cross-program interactions and new tools that promote innovation, incentives and partnerships. We know that a healthy environment and a strong economy can go hand-in-hand. Sustainable, innovative approaches grounded in science—the underpinning of the EPA's decision making—are instrumental to solving today's environmental challenges. Now more than ever the EPA's leadership as a pre-eminent science and research

institution is essential. To that end, I will advance a rigorous research and development agenda that informs and supports the EPA's policy and decision making with timely and innovative technology and sustainable solutions. We also are mobilizing citizen science efforts to complement those of the EPA, which, combined with greater access to environmental data, enhanced community engagement, environmental education, new tools and increased analysis, will better support state and local decision making. We will heed President Obama's call for action on climate change, the biggest challenge for our generation and those to follow and requiring strong partnerships here at home and around the world. We will work to mitigate this threat by reducing carbon pollution and other greenhouse-gas emissions and by focusing on efficiency improvements in homes, buildings and appliances. We will continue to deliver significant health benefits to the American public through improved air quality and reduced emissions of toxic pollutants in areas where exposures remain challenging. We also will take action to keep communities safe and healthy by reducing risks associated with exposure to toxic chemicals in commerce, indoor and outdoor environments and products and food. Further, we will work to update old chemical-safety laws so our industry partners have a clear, fair set of rules, and we can more effectively protect the public from harmful chemicals in products they use every day.

Administrator's Seven Themes

- Making a visible difference in communities across the country
- Addressing climate change and improving air quality
- Taking action on toxics and chemical safety
- Protecting water: a precious, limited resource
- Launching a new era of state, tribal and local partnerships
- Embracing EPA as a high-performing organization
- Working toward a sustainable future

Now is the time to reinvigorate our collaborative efforts to improve water quality, given the nation's significant water-infrastructure needs. We will focus on common-sense, flexible approaches that rely on sustainable solutions, such as green infrastructure, and that build resiliency to help us adapt to the effects of a changing climate. Further, we will address stormwater runoff with a pragmatic balance of regulatory and nonregulatory approaches. We will collaborate with our federal-agency partners to leverage our expertise and resources in addressing water-quality issues, particularly in rural areas dealing with nonpoint-source pollution.

To help ensure these efforts succeed, we will convene broad-based dialogue and engagement at the national, regional, and local levels to foster innovation and collaboration. Notably, we are implementing E-Enterprise, a joint EPA–state initiative to improve environmental performance and enhance services to the regulated community, environmental agencies and the public. E-Enterprise will increase transparency and efficiency, develop new environmental-management approaches and employ advanced information and monitoring technologies in a coordinated effort to manage and modernize environmental programs. This initiative will significantly transform the way we work by allowing two-way business transactions, reducing reporting burden and improving data quality.

For the EPA to engage fully in the U.S. environmental-protection enterprise we envision, we must fulfill our mission while operating as a high-performing organization focused on efficiency. We are committed to this effort and are already making progress to attract and retain the work force of the future, modernize our business practices and more fully employ new tools and technologies. We are modernizing our business practices to enhance the EPA's overall effectiveness, including making our data more accessible, efficient and transpar-

ent. For example, we are accelerating our efforts under both E-Enterprise and Next Generation Compliance to reflect advances in pollutant monitoring and information technology. These advances, combined with a focus on designing rules and permits that are easier to implement, will result in reduced pollution and improved environmental results.

It is my privilege as Administrator to help advance the themes encompassed by the goals, cross-agency strategies and core values in this strategic plan. I look forward to working with all of you to create a healthier, sustainable and prosperous future for every community for generations to come.

Gina McCarthy

Introduction

The U.S. Environmental Protection Agency's (EPA's) mission is to protect human health and the environment. The FY 2014–2018 EPA Strategic Plan *(the* Plan*) advances this mission, supports implementation of the Administration's and the EPA's priorities, and will be used routinely by the Agency's senior leadership as a management tool to guide our path forward. Administrator McCarthy identified seven themes (see "Administrator's Message") that will drive the Agency's efforts over the next 4 years, and this* Plan *encompasses these themes as we work toward achieving our five strategic goals, four cross-agency strategies, and overarching core values.*

In implementing this *FY 2014–2018 Plan*, EPA will focus on developing and using creative, flexible, cost-effective, and sustainable actions that deliver significant benefits on the ground to protect and improve human health and the environment. In support of the President's *Climate Action Plan* (June 2013), we will implement strategies to cut carbon pollution while promoting innovation to drive economic growth, building resilience to extreme weather events, and adapting to a changing climate. We will strengthen our partnerships by building new tools and strategies that enhance coordination and joint priority setting with our state and tribal partners and other federal agencies. We also will focus our grant and incentive-based programs, and provide sound credible scientific advice and technical assistance, to help states, tribes, rural and urban communities, and the private sector address environmental and human health challenges that matter to them in ways that make sense to them. Additionally, EPA will continue to pursue advances in new tools and technologies and increase the transparency of our data to better serve our customers and deliver significant environmental progress. We will also continue to improve the way we do business as a high-performing organization for the benefit of both our workforce and the public we serve.

Our five strategic goals represent the programmatic mission results we hope to achieve on behalf of the American people. These strategic goals embody the measurable environmental

EPA's Mission

To protect human health and the environment.

EPA's Strategic Goals

- Goal 1: Addressing Climate Change and Improving Air Quality
- Goal 2: Protecting America's Waters
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- Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution
- Goal 5: Protecting Human Health and the Environment by Enforcing Laws and Assuring Compliance

EPA's Cross-Agency Strategies

- Working Toward a Sustainable Future
- Working to Make a Visible Difference in Communities
- Launching a New Era of State, Tribal, Local, and International Partnerships
- Embracing EPA as a High-Performing Organization

EPA's Core Values

Science, Transparency, Rule of Law

and human health outcomes the public can expect over the next 4 years and describe how we intend to achieve those results. Although we have made significant progress over the last few years, our five strategic goals highlight the increasingly complex environmental and human health concerns we are facing at a time of continuing fiscal constraints. With this in mind, we have focused on identifying targeted opportunities and adjustments to ongoing work under our strategic goals to increase efficiencies and leverage and support efforts at all levels to achieve our mission results.

Our four cross-agency strategies are designed to fundamentally change how we work, both internally and externally, to achieve the outcomes articulated in the *FY 2014–2018 Plan*. We are committed to achieving the longer-term vision for these strategies by focusing our efforts and making tangible, measurable progress to transform the way we deliver environmental and human health protection. For example, we will incorporate sustainability principles into regulatory, enforcement, incentive-based, and partnership programs. We will strive to enhance the livability and economic vitality of all communities, especially those most in need and facing environmental justice concerns, including millions of minority, low-income, tribal, and indigenous persons. And, we will work in concert with the states, tribes, local governments, and sister federal agencies that constitute our country's environmental protection enterprise to ensure the efficiency, efficacy, and coordination of our mutual efforts. We will streamline our processes, increase effectiveness, and reduce costs by modernizing business practices to make EPA a high-performing organization.

We anticipate that these approaches will foster a renewed commitment to accountability, transparency, and inclusion, expanding the conversation and engaging with a broad range of stakeholders—federal, state, and local agencies, tribes, agricultural and manufacturing sectors, small businesses, industry, and other stakeholders, including those with whom we have not traditionally worked. The continuing transformational changes to improve how we work together and take advantage of advances in technology, expanded access to environmental data, and enhanced outreach to communities and stakeholders through environmental education will usher in a new era of partnerships and broad-based participation in managing human health and environmental risks.

We will continue to affirm the core values of science, transparency, and the rule of law in addressing our environmental challenges. Our work will be guided by the best possible data and research and a commitment to transparency and accountability. Science

Consultation Efforts

Consultation with our federal, state, local, and tribal government partners and our many stakeholders is an integral part of the Agency's strategic planning process. The importance of consultation is also reflected in the GPRA (Government Performance and Results Act) Modernization Act of 2010, which directs agencies to consult with the Congress and requires that they solicit and consider the views and suggestions of those entities potentially affected by or interested in a strategic plan. During the development of the *FY 2014–2018 EPA Strategic Plan*, EPA:

- Engaged with key partners and co-regulators throughout the effort to develop the *Draft Plan.*
- Issued a *Federal Register Notice* and used www.regulations.gov to encourage and share feedback on the *Draft Plan*.
- Sent notification of the availability of the *Draft Plan* for review to over 800 organizations and individuals to request input. These entities included leaders of the Agency's Congressional authorizing, appropriations, and oversight committees; states and state associations; all federally recognized tribes; tribal organizations; local government representatives; other federal agencies; environmental, public interest, and public policy groups; and representatives of the regulated community.
- Engaged the public on the *Draft Plan* through the use of social media through Twitter and Facebook posts as well as blogs by senior managers.

Our outreach efforts resulted in unique comments from approximately 200 organizations and individuals.

and research are the foundation of all our work at the EPA and the scientific underpinning of decisions and regulatory actions. We have incorporated science and research efforts over the next 4 years throughout the Plan in both our strategic goals and cross-agency strategies. Our research will continue to be focused on the most critical issues facing the Agency and finding more sustainable solutions for addressing human health and environmental problems.

With advances in both monitoring and information technology, we are developing new methods for targeting the most serious violations and improving compliance. E-Enterprise is a joint EPA and state initiative to modernize our business practices to increase accessibility, efficiency, and responsiveness. Additionally, through Next Generation Compliance, we are promoting the use of advanced monitoring and electronic reporting, designing rules that are easier to implement, expanding transparency and sharing of data, and using innovative enforcement approaches to increase compliance and reduce pollution.

While developing this revised *Plan*, we are also identifying six new FY 2014–2015 Agency Priority Goals (APGs), which are a major cornerstone of this Administration's performance management agenda and championed by Agency senior leadership to advance our mission results. These six APGs are listed in the introduction to the "Strategic Measurement Framework" and discussed in relevant sections throughout the *Plan*. Completion of our five FY 2012–2013 APGs informed the development of this new set of two-year APGs. EPA also contributes to Cross-Agency Priority (CAP) Goals that are led by the White House Policy Council.[1] Additional information on the APGs and CAP Goals is available on http://www.performance.gov/.

To achieve the strategic goals, objectives, and measures set out in this *Plan*, we will track progress through annual performance measures which are presented in EPA's *Annual Performance Plans and Budgets*. We will report on our performance against these annual measures in our *Annual Performance Reports* and use this performance information as we establish priorities, develop future budget submissions, and manage programs.

Our measures for the *FY 2014–2018 EPA Strategic Plan* draw upon some of the indicators contained in EPA's *Report on the Environment* (ROE).[2] The indicators help us to monitor trends in the condition of the nation's environment and environmental influences on human health. They are intended to inform strategic planning, priority setting, and decision making across EPA and provide information for the public on the state of the environment.

To advance the cross-agency strategies in this *Plan*, we have strengthened senior leadership engagement in developing and implementing annual action plans, designed to make measurable progress in transforming the way we work to advance our mission results. Agency senior leadership will work closely with program and regional managers and staff in accomplishing the annual action plans and routinely assess progress. And EPA will report its results in advancing the strategies in the *Annual Performance Report*, presented along with the budget.

As we work to implement the *FY 2014–2018 EPA Strategic Plan* over the next 4 years, we recognize that the Agency and numerous entities vital to our success—federal, tribal, state, and local governments, and other cooperating partners and stakeholders—are all operating under resource constraints that could impede our mutual progress. We will collaborate in new ways to address the environmental and human health challenges that lie ahead of us, leverage resources to the greatest extent possible, and continually seek new opportunities to work more effectively and efficiently.

End Notes

1. Per the GPRA Modernization Act requirement to address Cross-Agency Priority (CAP) Goals in the Agency *Strategic Plan*, the *Annual Performance Plan*, and the *Annual Performance Report*, please refer to www.performance.gov for the Agency's contributions to those goals and progress, where applicable. EPA is currently a major contributor to the CAP Goals on Infrastructure Permitting Modernization and Science, Technology, Engineering and Mathematics (STEM) Education.

2. See http://www.epa.gov/roe/indicators.htm.

Goal 1: Addressing Climate Change and Improving Air Quality

Reduce greenhouse gas emissions and develop adaptation strategies to address climate change and protect and improve air quality.

Climate change poses risks to human health, the environment, cultural resources, the economy, and quality of life.[1] These changes are expected to create further challenges to protecting human health and welfare. Many effects of a changing climate are already evident and will persist into the future regardless of future levels of greenhouse gas (GHG) emissions. For example, average U.S. temperatures are rising, snow and rainfall patterns are shifting, and more extreme climate events—like heavy rainstorms and record high temperatures—are already affecting society, human health, and the environment. Potential climate change impacts may also make it more difficult to achieve clean air goals. To better protect human health and the environment, EPA must recognize and consider the challenge a changing climate poses to the environment.

Notwithstanding this challenge, since passage of the Clean Air Act Amendments in 1990, nationwide air quality has improved significantly.[2] Levels of those pollutants linked to the greatest health impacts continue to decline. From 2003 to 2011, population-weighted ambient concentrations of fine particulate matter (PM2.5) and ozone have decreased 26 percent and 16 percent, respectively. Even with this progress, in 2010 approximately 40 percent of the U.S. population lived in counties with air that did not meet health-based standards for at

Objectives

- **Address Climate Change.** Minimize the threats posed by climate change by reducing greenhouse gas emissions and taking actions that help to protect human health and help communities and ecosystems become more sustainable and resilient to the effects of climate change.

  FY 2014–2015 Agency Priority Goal: Reduce greenhouse gas emissions from vehicles and trucks. Through September 30, 2015, EPA, in coordination with the Department of Transportation's fuel economy standards program, will be implementing vehicle and truck greenhouse gas (GHG) standards that are projected to reduce greenhouse gas emissions by 6 billion metric tons and reduce oil consumption by about 12 billion barrels over the lifetime of the affected vehicles and trucks.

- **Improve Air Quality.** Achieve and maintain health- and welfare-based air pollution standards and reduce risk from toxic air pollutants and indoor air contaminants.

- **Restore and Protect the Ozone Layer.** Restore and protect the earth's stratospheric ozone layer and protect the public from the harmful effects of ultraviolet (UV) radiation.

- **Minimize Exposure to Radiation.** Minimize releases of radioactive material and be prepared to minimize exposure through response and recovery actions should unavoidable releases occur.

Strategic measures associated with this Goal are on pages 59 through 62. More information on Agency Priority Goals is available at http://goals.performance.gov/agency/epa.

least one pollutant. Long-term exposure to elevated levels of certain air pollutants has been associated with increased risk of cancer, premature mortality, and damage to the immune, neurological, reproductive, cardiovascular, and respiratory systems.[3] Because people spend much of their lives indoors, the quality of indoor air is also a major health concern. Indoor allergens and irritants play a significant role in making asthma worse and triggering asthma attacks. The most recent data (2011) from the Centers for Disease Control and Prevention (CDC) tell us that 26 million Americans have asthma, and in 2010, CDC reports that asthma was the primary diagnosis for nearly 2 million hospital emergency visits.[4] In 2008, more than half of children and one-third of adults who had an asthma attack missed school or work because of asthma and total costs for Americans from asthma was $56 billion in 2007.[5] Exposure to indoor radon is responsible for an estimated 21,000 premature lung cancer deaths each year.[6] Twenty percent of the population spends the day indoors in elementary and secondary schools, where potential problems with leaky roofs and with heating, ventilation, and air conditioning systems can trigger a host of health problems, including asthma and allergies.

Address Climate Change

EPA's strategies to address climate change reflect the President's call to action in his *Climate Action Plan* (June 2013), which, among other initiatives, tasks EPA with setting carbon dioxide (CO2) standards for power plants and applying the Agency's authorities and other tools to address hydrofluorocarbons (HFCs) and methane. These strategies support the President's goal to reduce GHG emissions by 17 percent below 2005 levels by 2020.[7] EPA and its partners are developing and implementing approaches to reduce GHG emissions domestically and internationally through cost-effective, voluntary programs while pursuing additional regulatory actions as needed. Our efforts address the following areas:

Mobile Sources

- Implementing three sets of GHG standards for vehicles and trucks, including: two sets of GHG standards for light-duty cars and trucks (model years 2012–2016 and 2017–2025); and the first set of standards for medium- and heavy-duty trucks and buses (model years 2014–2018). These emission standards, finalized jointly with the National Highway Traffic Safety Administration (NHTSA) fuel economy standards, will result in substantial reductions in new vehicle GHG emissions from model years 2012 through 2025. (Reducing greenhouse gas emissions from cars and trucks is an FY 2014–2015 Agency Priority Goal.[8])

- Carrying out the next phase of the GHG vehicle emission standards. Consistent with the President's *Climate Action Plan*, the Agency plans to propose in March 2015 a second phase of fuel efficiency and greenhouse gas emission standards for medium- and heavy-duty vehicles for model years 2018 and beyond, and plans to finalize the standards in March 2016. This second phase of regulations will build upon the success of the first phase and offer further opportunities to reduce greenhouse gas emissions and decrease transportation fuel consumption, and is expected to benefit consumers and business by reducing the cost of transporting goods while spurring job growth and innovation in the clean energy technology sector.

- Assessing GHG control options for non-road sources, including evaluating whether and when to commence work on standards setting for GHG emissions from a wide range of non-road equipment, locomotives, marine vessels and aircraft, and transportation fuels.

Stationary Sources

- Using authority under Section 111(b) of the Clean Air Act, EPA issued a new proposal on September 20, 2013 for GHG performance standards for new power plants and will subsequently finalize that rule after consideration of public comment as appropriate. Using authority under Sections 111(b) and 111(d) of the Act, EPA will issue proposed GHG standards, regulations, or guidelines, as appropriate, for modified, reconstructed, and existing power plants by June 1, 2014, and finalize these standards, regulations, or guidelines by June 1, 2015.

- Collecting and publishing high-quality GHG emissions data from large direct emitters and suppliers of GHGs through the greenhouse gas reporting

program to inform the public and support sound, data-driven, policy decisions on climate change.

- Implementing permitting requirements for facilities that emit large amounts of GHGs to encourage design and construction of more sustainable, efficient, and advanced processes that will contribute to a clean energy economy.
- Applying the Significant New Alternatives Policy (SNAP) program to promote the use of low global warming potential HFCs and similar chemicals.

International and Other Efforts

- Implementing proven voluntary programs that maximize GHG reductions through the greater use of technologies, products, and practices that promote energy efficiency, and renewables programs and policies that benefit the environment and human health.
- Identifying and assessing substitute chemical and ozone-depleting substances and processes for their global warming potential.
- Collaborating with countries and other international partners to reduce methane emissions and deliver clean energy to markets around the world through the Global Methane Initiative.
- Collaborating with international partners to reduce short-lived climate pollutants, including methane, black carbon, and hydrofluorocarbons, through the Climate and Clean Air Coalition.
- Educating the public about a changing climate and actions people can take to reduce GHG emissions.
- Collaborating with state, local, and tribal governments on regulatory and policy initiatives, technical assistance, and voluntary programs related to climate change mitigation and adaptation.

Adaptation

Much of EPA's work is sensitive to weather and climate. Consequently, the various actions EPA takes to meet its obligations and achieve its goals, including promulgating regulations and implementing programs, take these variables into consideration. For example, potential increases in ground-level ozone due to a changing climate could make attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) more challenging. Similarly, attaining water quality standards will become more difficult as water temperatures increase in response to climate change.

EPA must adapt and plan for future changes in climate to continue fulfilling its statutory, regulatory, and programmatic requirements. The Agency will implement its Climate Change Adaptation Plan, and consider where it is appropriate to integrate and mainstream considerations of a changing climate into the full range of its programs to ensure they are effective under future climatic conditions. EPA will work with state, tribal, and local partners to enhance their capacity to adapt to a changing climate. Each of the EPA national programs and ten regional offices will implement new climate adaptation implementation plans to carry out the work called for in the Agency's Climate Change Adaptation Plan. EPA will also continue to collaborate with the U.S. Global Change Research Program and the Council on Climate Change Preparedness and Resilience to support the development and implementation of climate change adaptation plans by all federal agencies.[9]

Adaptation initiatives undertaken by EPA national programs and regional offices will carry out key elements of the President's *Climate Action Plan* (June 2013) and aim to increase the resilience of communities and ecosystems to climate change by increasing their ability to anticipate, prepare for, respond to, and recover from the impacts of a changing climate. EPA is encouraging and supporting smarter, more resilient investments by integrating considerations of climate change impacts and adaptive measures into major grant, loan, contract, and technical assistance programs, consistent with existing authorities. For example, EPA is integrating climate adaptation criteria into the Clean Water and Drinking Water State Revolving Loan Funds and grants for brownfields cleanup. EPA is also partnering with states, tribes, and urban and rural communities to integrate climate change data, models, information, and other decision-support tools into their planning processes in ways that empower them to anticipate, prepare for, and adapt to a changing climate. As an example, EPA developed a stormwater calculator that will

enable users to evaluate the effectiveness of alternative strategies for limiting stormwater runoff that can overwhelm sewer systems and spill into rivers and streams, and to identify strategies that ensure the systems are effective under future climatic conditions.

External Factors and Emerging Issues

External influences on EPA's efforts to improve air quality and address climate change issues include the evolution of state and local transportation and energy-related policies and the impacts of a changing climate, such as changes in rainfall amount and intensity, shifting weather and seasonal patterns, and increases in flood plain elevations and sea levels. Some of these external influences present significant challenges to the EPA's work, whereas others, such as the growth of alternative energy sources and increased investments in energy efficiency, can improve local air quality and reduce greenhouse gas emissions.

Improve Air Quality

Taking into account the most current health effects research findings,[10] EPA has completed new, more health-protective national ambient air quality standards for particulate matter (December 2012), lead (October 2008), sulfur dioxide (June 2010), nitrogen dioxide (January 2010), and carbon monoxide (August 2011), and is currently reviewing the standard for ozone. Over the next 4 years, we will work with states and tribes to develop and implement plans to achieve and maintain these standards. Our efforts provide the tools and information necessary for EPA, states, and tribes to implement air quality standards and controls.

EPA will work with states and tribes to decrease the emissions that contribute to interstate transport of air pollution. These efforts will help many areas of the country attain the standards and achieve significant improvements in human health. Working with states and tribes, EPA will continue implementing cost-effective multi-state regional programs designed to control the significant contributions of power plant and other stationary source emissions of sulfur dioxide (SO2) and nitrogen oxide (NOx) to air quality problems (i.e., nonattainment and interference with maintenance of ozone and PM2.5 NAAQS) in downwind areas. Operating programs in 2014 will include the Clean Air Interstate Rule (CAIR) or a replacement program for control of transported ozone and PM2.5 pollution,[11] in addition to the national acid rain SO2 and NOx emission reduction programs.

As we implement national air quality standards, we will seek ways to increase efficiency and maximize results. These efforts include: working with states to improve the state implementation plan approval process, including the use of full-cycle analysis (i.e., identifying specific actions along a time line needed to facilitate the timely issuance of implementation rules and guidelines); modernizing our training program for state, local, and tribal agencies through an e-learning system; and implementation of electronic emission reporting as part of the Agency's E-Enterprise initiative.

Additionally, EPA will work to ensure that our efforts to improve air quality consider low-income and minority communities that are disproportionately impacted by pollution. The Agency will continue to implement the goals of the Environmental Justice (EJ) 2014 strategy that focus on protecting health in communities overburdened by pollution, empowering communities to take action to improve their health and environment, and establishing partnerships with local, state, tribal, and federal organizations to achieve healthy and sustainable communities.

EPA has finalized a number of air pollution control standards over the last decade that have substantially reduced, and will continue to reduce, PM, NOx, volatile organic chemicals (VOCs), air toxics, and GHG emissions. These standards will cut emissions from new vehicles and engines by over 90 percent, with an estimated $290 billion in net health benefits by 2030. In addition, EPA partnership programs such as the SmartWay Transport program, are achieving important reductions in emissions from the existing fleet of diesel engines that are not subject to the new standards.[12]

Looking forward, EPA will collect and evaluate mobile source emission data to help guide future program priorities. Other factors to consider include the health and environmental effects of emissions and

future advancements in technology that could provide opportunities for further emission reductions.

The Agency also recognizes the importance of fuels work and the critical need to understand the challenges and opportunities this work presents. EPA will continue to coordinate with the Department of Energy (DOE), Department of Agriculture (USDA), and other interagency partners on these issues as appropriate. The Agency plans to focus on streamlining the implementation processes of the renewable fuel standard (RFS) program, including the annual standard-setting process and new fuel pathway approvals. EPA will also strengthen its oversight of industry compliance with RFS standards and core fuels and fuels additive registration mandates through a voluntary third-party quality assurance program to verify that renewable identification numbers (RINs) have been validly generated. In addition, proposed modifications to the exporter provisions of the RFS program will help to ensure that an appropriate number and type of RINs are retired whenever renewable fuel is exported.

Air toxics and other air pollutants can be widespread and/or community specific. They are emitted by large industry, small businesses, motor vehicles, and many other common activities. Although certain chemicals are ubiquitous throughout the country, in some areas of concentrated industrial and/or mobile source activity, concentrations may be significantly greater. To support effective air toxics reduction policies, EPA uses data from our national toxics monitoring network and from national and local assessments to provide key information to better characterize risks and assess priorities. EPA also leverages pollution prevention and green expertise to reduce air toxics emissions and associated risk.

EPA recognizes that air toxics pose unique challenges both nationally and at the community level, and we focus on relatively high-risk sources, pollutants, and exposure situations. EPA will continue to set and enforce control technology-based air toxics emissions standards and, where needed, amend those standards to address residual risk and technology advancements. These regulations are aimed at reducing toxic air pollution from stationary sources and targeted priority source categories, reducing pollution in communities, utilizing a more cost-effective "sector-based" approach, and providing tools to help communities and other stakeholders participate in rulemaking. Priority categories include petroleum refining, iron and steel manufacturing, chemical manufacturing, and Portland cement. EPA takes advantage of the natural overlap of certain air toxics and criteria pollutant rules and coordinates the development and implementation of Maximum Achievable Control Technology (MACT) standards and New Source Performance Standards (NSPSs) where appropriate. By coordinating MACT standard development for specific source categories with other rulemaking efforts, EPA can substantially reduce the resources needed to develop standards; provide more certainty and lower cost for industry; simplify implementation for state, local, and tribal agencies; and enhance cost-effective regulatory approaches. To address unacceptable risks that may remain after implementing national strategies, EPA works with states, tribes, and local agencies and organizations to understand the risks at the local level, target the problem areas, and tailor reduction strategies and approaches to the unique situations in those areas.

To improve indoor air quality, EPA deploys programs that educate the public about indoor air quality concerns, including radon, and promotes public action to reduce potential risks in homes, schools, and workplaces. Included among the people most exposed to indoor air pollutants are those most susceptible to the effects—the young, the elderly,

and the chronically ill. In addition, EPA collaborates with state and tribal organizations, environmental and public health officials, housing, energy, and building organizations, school personnel who manage school environments, and health care providers who treat children prone to or suffering disproportionately from asthma. The focus of these efforts is to create, expand, and leverage systems already in place to support community efforts to address indoor air quality health risks.

External Factors and Emerging Issues

External factors that will affect air quality program implementation include the outcome of the appeal of the Cross-State Air Pollution Rule (CSAPR) decision and continuing legal challenges to stationary source rules.[13] Also, impacts from a changing climate may worsen existing indoor environmental problems and introduce new ones as temperatures change and the frequency and/or severity of adverse outdoor events increase. These impacts include increased mold from water damage and more time spent indoors where air may be of poorer quality.

Restore and Protect the Ozone Layer

EPA will implement programs that reduce and control ozone-depleting substances (ODS), enforce rules on their production, import, and emission, and facilitate the transition to alternative products that reduce GHG emissions and save energy. EPA's contributions to the Multilateral Fund for the Implementation of the Montreal Protocol will help to continue support for cost-effective projects designed to build capacity and eliminate ODS production and consumption in over 60 developing countries. EPA will also continue partnership programs that educate the public about the importance of protection from harmful ultraviolet radiation.

External Factors and Emerging Issues

Protection of the ozone layer is a global problem that cannot be solved by domestic action alone—all nations must also phase out the use of ODS. Much remains to be done in the U.S. and in the global community at large before the ozone layer will be considered safe for current and future generations.

Critical emerging issues include the need to ensure that:

- Ozone depleting substances are replaced by alternatives that reduce overall risk to human health and the environment;
- Use of the agricultural fumigant methyl bromide is phased out in a manner that provides continued control of pests that threaten food supplies and other economically important products traded internationally by the U.S.;[14] and
- Remaining ODS phaseout, including the 2013 and 2015 developing-country ODS reduction requirements, is appropriately supported in a manner that is both cost effective and climate friendly.[15]

Minimize Exposure to Radiation

Recognizing the potential hazards of radiation, Congress charged EPA with the primary responsibility for protecting people and the environment from harmful and avoidable exposures. In fulfilling this responsibility, the Agency will review and update its radiation protection regulations and guidance and operate RadNet, the Agency's national environmental radiation monitoring system. EPA will also maintain personnel expertise, capabilities, and equipment readiness of the radiological emergency response program, including the Agency's Radiological Emergency Response Team. In addition, EPA will provide regulatory oversight of DOE's Waste Isolation Pilot Plant (WIPP), inspect WIPP waste generator facilities, and evaluate DOE's compliance with EPA's radioactive waste disposal standards and applicable environmental laws and regulations.

External Factors and Emerging Issues

There are several emerging issues and external factors that will have an impact on how we carry out our radiation program, including new designs and technologies for nuclear power plant facilities as well as new uranium extraction and processing technologies.

Applied Research

Protecting human health and the environment from the impacts of a changing climate and air quality in a sustainable way are central 21st century challenges.

These challenges are complicated by the interplay between air quality, the changing climate, and emerging energy options. EPA's air, climate, and energy research will provide cutting-edge scientific information and tools to support air quality and climate change efforts. In particular, EPA will:

- Conduct integrated science assessments of criteria air pollutants and provide new data and approaches for improving these assessments;
- Develop credible models and tools to inform sustainable policies, decisions, and responses to a changing climate by EPA national and regional offices, state, tribal, and local governments, and others;
- Conduct research to change the paradigm for air pollution monitoring, with a focus on lower cost measurements;
- Develop and evaluate models and decision support tools to integrate multimedia processes and systems;
- Develop approaches to assess multi-pollutant exposures and the resulting human and ecological effects of air pollutant mixtures; and
- Conduct research to inform policies protecting human and ecosystem health in an evolving energy landscape, including impacts of unconventional oil and gas and low-carbon energy sources.

End Notes

1. Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson (eds.). 2009. Global Climate Change Impacts in the United States (New York, New York: Cambridge University Press). Available at http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf.
2. U.S. EPA, 2012. *Our Nation's Air—Status and Trends through 2010.* EPA-454/R-12-001. Available at http://www.epa.gov/airtrends/2011/.
3. U.S. EPA, 2007. *The Plain English Guide to the Clean Air Act*. EPA-456/K-07-001. Available at http://www.epa.gov/air/peg/peg.pdf.
4. Twenty-six million Americans have asthma (actual data point is 25,943,000): National Health Interview Survey (NHIS) Data, 2011, available at http://www.cdc.gov/asthma/nhis/2011/data.htm. Year 2010 data for nearly 2 million emergency department visits with primary diagnosis of asthma (actual data point is 1,754,000): National Hospital Ambulatory Medical Care Survey: 2010 Emergency Department Summary Tables, available at http://www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2010_ed_web_tables.pdf.
5. Costs: Centers for Disease Control and Prevention (2011, May). Asthma in the U.S. Vital Signs. Retrieved from http://cdc.gov/vitalsigns/asthma.
6. U.S. EPA, 2003. *EPA's Assessment of Risks from Radon in Homes.* EPA 402-R-03-003. Available at http://www.epa.gov/radiation/docs/assessment/402-r-03-003.pdf.
7. See http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/unitedstatescphaccord_app.1.pdf.
8. FY 2014–2015 Agency Priority Goal: Reduce greenhouse gas emissions from vehicles and trucks: Through September 30, 2015, EPA in coordination with Department of Transportation's fuel economy standards program will be implementing vehicle and truck greenhouse gas (GHG) standards that are projected to reduce greenhouse gas emissions by 6 billion metric tons and reduce oil consumption by about 12 billion barrels over the lifetime of the affected vehicles and trucks.
9. The U.S. Global Change Research Program coordinates and integrates federal research on changes in the global environment and the implications of these changes for society, as mandated in the Global Change Research Act of 1990 (P.L. 101-606) (http://www.globalchange.gov/about/global-change-research-act.html). In 2009, the White House Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration initiated the Interagency Climate Change Adaptation Task Force. When the President signed Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, in October 2009, he called on the Task Force to develop federal recommendations for adapting to climate change impacts both domestically and internationally. Executive Order 13514 is available at http://www.whitehouse.gov/the_press_office/President-Obama-signs-an-Executive-Order-Focused-on-Federal-Leadership-in-Environmental-Energy-and-Economic-Performance.

10. U.S. EPA, 2006. *Air Quality Criteria for Lead (2006) Final Report*. EPA/600/R-05/144aF-bF. Available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=158823.

    U.S. EPA, 2008. *Integrated Science Assessment (ISA) for Sulfur Oxides—Health Criteria (Final Report)*. EPA/600/R-08/047F. Available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=198843.

    U.S. EPA, 2008. *Integrated Science Assessment for Oxides of Nitrogen—Health Criteria (Final Report)*. EPA/600/R-08/071. Available at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=194645.

11. In 2008, the U.S. Court of Appeals for the D.C. Circuit remanded CAIR to EPA, but allowed the rule to remain in effect pending replacement by a valid rule. In August 2012, the same court vacated EPA's replacement rule (CSAPR). The Agency successfully petitioned the U.S. Supreme Court to hear an appeal of the D.C. Circuit's decision, and the Supreme Court is expected to issue its opinion on the merits by June 2014. Depending on the outcome of that appeal, CAIR's ultimate replacement could be either CSAPR or the product of a new EPA rulemaking effort.

12. Recent air pollution control standards include the Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements (February 2001); the 2007 Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Highway Rule (January 2001); the Tier 4 Emission Standards (June 2004); and Locomotive Engines and Marine Compression-Ignition Engines rule (June 2008).

13. In an August 21, 2012 opinion, the U.S. Court of Appeals for the D.C. Circuit vacated the CSAPR and ordered EPA to continue implementing CAIR pending development of a valid replacement. The Agency successfully petitioned the U.S. Supreme Court to hear an appeal of the D.C. Circuit's decision, and the Supreme Court is expected to issue its opinion on the merits by June 2014. Please see http://www.epa.gov/crossstaterule/ for updates on CSAPR.

14. Use of the agricultural fumigant methyl bromide was phased out in 2005. However, two exemptions allow the production and use of methyl bromide to control pests related to food production and international trade. The Critical Use Exemption is used in limited cases where a showing has been made, and agreed to by the Parties subsequent to review by technical review bodies of the Montreal Protocol, that no technically and economically feasible alternative exists.

15. All countries that are Parties to the Montreal Protocol have agreed to phase out their production and consumption of ozone depleting substances (ODS). The Multilateral Fund was set up by agreement among the Parties, and the Fund's purpose is to assist developing countries to comply with these obligations. Contributions are made to the Multilateral Fund by developed countries, also referred to as donor countries under the Treaty.

Goal 2: Protecting America's Waters

Protect and restore waters to ensure that drinking water is safe and sustainably managed, and that aquatic ecosystems sustain fish, plants, wildlife, and other biota, as well as economic, recreational, and subsistence activities.

The nation's water resources are the lifeblood of our communities, supporting our economy and way of life. Across most of the country, we enjoy and depend upon reliable sources of clean and safe water. Just a few decades ago, many of our drinking water systems provided very limited treatment to water coming through the tap. Drinking water was often the cause of illnesses linked to microbiological and other contaminants. Many of our surface waters would not have met today's water quality standards. Some of the nation's rivers were open sewers, posing health risks, and many water bodies were so polluted that safe swimming, fishing, and recreation were not possible.

We have made significant progress since enactment of the landmark Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and Marine Protection, Research, and Sanctuaries Act approximately 40 years ago. Today, although the enhanced quality of our surface waters and the greater safety of our drinking water are testaments to

Objectives

- **Protect Human Health.** Achieve and maintain standards and guidelines protective of human health in drinking water supplies, fish, shellfish, and recreational waters, and protect and sustainably manage drinking water resources.

  FY 2014–2015 Agency Priority Goal: Improve public health protection for persons served by small drinking water systems, which account for more than 97 percent of public water systems in the U.S., by strengthening the technical, managerial, and financial capacity of those systems. By September 30, 2015, EPA will engage with an additional ten states (for a total of 30 states) and three tribes to improve small drinking water system capability to provide safe drinking water, an invaluable resource.

- **Protect and Restore Watersheds and Aquatic Ecosystems.** Protect, restore, and sustain the quality of rivers, lakes, streams, and wetlands on a watershed basis, and sustainably manage and protect coastal and ocean resources and ecosystems.

  FY 2014–2015 Agency Priority Goal: Improve, restore, and maintain water quality by enhancing nonpoint source program leveraging, accountability, and on-the-ground effectiveness to address the nation's largest sources of pollution. By September 30, 2015, 100 percent of the states will have updated nonpoint source management programs that comport with the new Section 319 grant guidelines that will result in better targeting of resources through prioritization and increased coordination with USDA.

Strategic measures associated with this Goal are on pages 63 through 66. More information on Agency Priority Goals is available at http://goals.performance.gov/agency/epa.

decades of environmental protection and investment, serious challenges remain. Many small drinking water systems are particularly challenged by the need to improve and maintain infrastructure and develop the capacity to comply with new and existing standards. Tens of thousands of homes, primarily in tribal and disadvantaged communities and the territories, still lack access to basic sanitation and drinking water. The rate at which new waters are listed for water quality impairments exceeds the pace at which restored waters are removed from the list.

For many years, nonpoint source pollution, principally nitrogen, phosphorus, and sediments, has been recognized as the largest remaining impediment to improving water quality. Recent national surveys have found that our waters are stressed by nutrient pollution, excess sedimentation, and degradation of shoreline vegetation, which affect upwards of 50 percent of our lakes and streams.[1] Pollution discharged from industrial, municipal, agricultural, and stormwater sources continue to be causes of water quality problems, as does the degradation of watersheds and their natural plant communities and hydrologic structure, which help protect water quality. A changing climate will compound these problems, highlighting the need to work with our partners to evaluate options for protecting infrastructure, conserving water, reducing energy use, adopting green infrastructure and locally driven watershed-based practices, and improving the resilience of infrastructural and natural systems, including utilities, watersheds, and estuaries.[2]

Over the next 4 years, EPA will reinvigorate efforts to improve water quality, working with states, territories, and tribes to better safeguard human health and make America's water systems sustainable and secure. We will:

- Assess the status of and changes in water quality through the National Aquatic Resource Surveys;
- Strengthen the protection of our aquatic ecosystem;
- Improve watershed-based approaches to reduce pollution;
- Implement innovative technologies;
- Carry out comprehensive approaches to help maintain healthy watersheds;
- Foster increased protection of drinking water sources through improved coordination between CWA and SDWA programs at the national, regional, state, and watershed scales;
- Focus efforts in key geographic areas;[3] and
- Take measures to incorporate climate change considerations into clean water and drinking water program planning and implementation.

EPA is establishing two Agency Priority Goals for FY 2014–2015 that are continuations from FY 2012–2013: (1) to improve public health protection for persons served by small drinking water systems by strengthening the technical, managerial, and financial capacity of those systems;[4] and (2) to improve, restore, or maintain water quality by enhancing nonpoint source program accountability, incentives, and effectiveness.[5]

In the first Priority Goal, EPA will continue to partner with the states and pilot with several tribes to enhance their capacity development, operator certification, and treatment optimization programs. These efforts are intended to build upon or reinvigorate efforts already underway across the country. The Agency is continuing to partner with the U.S. Department of Agriculture's (USDA's) Rural Utilities Service to promote drinking water and wastewater system sustainability, foster water sector workforce opportunities in rural America, and coordinate infrastructure funding as appropriate. EPA will continue to provide states and tribes with funding to assist utilities with financing drinking water infrastructure needs. In the second Priority Goal, EPA is implementing a strengthened nonpoint source (CWA Section 319) grant program[6] to continue yielding on-the-ground water quality results in watersheds nationwide. A significant component of this effort is working with state partners to update their nonpoint source programs, which guide overall priorities and investments for Section 319 funds. Updated nonpoint source programs, combined with collaboration efforts with USDA, state departments of agriculture, and other partners, will result in better protection of water quality from nonpoint sources of pollution.

Working with our partners, the Agency's effort to protect our waters has two objectives—protecting human health and protecting and restoring watersheds and aquatic ecosystems.

Protect Human Health

Sustaining the quality and supply of our water resources is essential to safeguarding human health. More than 300 million people living in the United States rely on the safety of tap water provided by public water systems that are subject to national drinking water standards. Over the next 4 years, EPA will help protect human health and make America's water systems sustainable and secure by:

- Providing financial assistance for public water system infrastructure to protect and maintain drinking water quality;
- Strengthening compliance with drinking water standards;
- Continuing to protect sources of drinking water from contamination and ensuring reliable supplies of drinking water as water temperatures increase (including addressing the harmful effects of algal blooms);

- Developing new and revising existing drinking water standards to address known and emerging contaminants that endanger human health; and
- Supporting states, tribes, and territories in their oversight of public water systems in implementing these standards, and supporting water systems directly through provision of guidance, training, and information.

While promoting sustainable management of drinking water infrastructure, we will provide needed oversight and technical assistance to states, tribes, and territories, so that their water systems comply with or exceed existing standards and are able to comply with new standards. We will also promote the construction of infrastructure that brings safe drinking water into the homes of small, rural, and disadvantaged communities and increase efforts to guard the nation's critical drinking water infrastructure.

In addition, EPA is actively working Agency-wide and with external partners and stakeholders to implement a multi-faceted drinking water strategy. With this approach, EPA seeks to: address chemicals and contaminants by group, as opposed to working on a chemical-by-chemical basis; foster the development of new drinking water treatment technologies; use the authority of multiple statutes in addressing drinking water contamination; and encourage collaboration with states and tribes to share more complete data from monitoring at public water systems. To this end, the Agency is replacing the federal and state components of EPA's Safe Drinking Water Information System (SDWIS) with a new system. SDWIS Prime is designed to assist regulatory agencies with their implementation of the public water system supervision (PWSS) program, as well as improve the efficiency of sharing drinking water data among states, tribes, and the Agency. This will allow for better targeting of federal and state funding and technical assistance resources, and improve data quality while increasing public access to drinking water data.

Science-based water quality criteria are essential to protect our public water systems, groundwater and surface water bodies, and recreational waters. These criteria are the foundation for state and tribal tools to safeguard human health such as public advisories for beaches, fish consumption, and drinking water. Over the next 4 years, we will expand that science to improve our understanding of emerging potential

waterborne threats to human health, develop new criteria, and validate testing methods that provide quicker results and enable faster action on beach safety.

External Factors and Emerging Issues

EPA's underground injection control (UIC) program provides a framework to ensure protection of underground sources of drinking water from endangerment related to the construction, operation, permitting, and closure of injection wells that place fluids underground for storage, disposal, enhanced recovery of oil and gas, or minerals recovery. Natural gas plays a key role in our clean energy future. Hydraulic fracturing is a key way to recover natural gas from sources. EPA will ensure proper oversight of hydraulic fracturing operations in cases where diesel fuel is used by implementing permitting guidance under SDWA's Class II UIC program for hydraulic fracturing. EPA is working with state and tribal organizations, along with other federal agencies, to develop and implement voluntary strategies for encouraging the use of alternatives to diesel in hydraulic fracturing and improving compliance with other Class II regulations, including possible risks from induced seismic events and the risk from radionuclides in disposal wells. EPA is also continuing to work with state, tribal, and industry representatives to make UIC Class II regulations and information more transparent and to implement best practices and promote coordination between UIC and oil and gas agencies.

Protect and Restore Watersheds and Aquatic Ecosystems

People and the ecological integrity of aquatic systems rely on healthy watersheds. EPA employs a suite of programs to protect and improve water quality in the nation's watersheds—rivers, lakes, wetlands, and streams—as well as in our estuarine, coastal, and ocean waters. In partnership with states, territories, local governments, and tribes, EPA's core water programs help:

- Protect, restore, maintain, and improve water quality by financing wastewater treatment infrastructure;
- Conduct monitoring and assessment;
- Establish pollution reduction targets;
- Update water quality standards;
- Issue and enforce discharge permits; and
- Implement programs to prevent or reduce non-point source pollution.

While promoting sustainable management of municipal wastewater and stormwater infrastructure, we will work with federal, state, and local partners to bring appropriate and effective solutions to small, rural, and disadvantaged communities. EPA will continue to promote robust planning that includes an assessment of green, sustainable alternatives, and will continue to work with municipalities on implementing the integrated planning process for wastewater and stormwater management on a case-by-case basis.[7]

We will also work more aggressively to reduce and control pollutants that are discharged from industrial, municipal, agricultural, and stormwater sources, and vessels, as well as to implement programs to prevent and reduce pollution that washes off the land during rain events. By promoting green infrastructure and sustainable landscape management, EPA will help restore natural hydrologic systems and the health of aquatic ecosystems to reduce pollution from stormwater events.[8] The Agency is exploring innovative approaches to meeting the 21st century water quality challenges with streamlined permitting and oversight processes supported by modernized data management and technologies.

To provide information on the ecological and recreational condition of the nation's waters and the key stressors impacting those waters, EPA will continue to work with states and tribes to implement the National Aquatic Resource Surveys, including the National Rivers and Streams Assessment, the National Coastal Condition Assessment, the National Wetland Condition Assessment, and the National Lakes Assessment.[9] These probability-based surveys provide nationally consistent and scientifically defensible assessments of our nation's waters. These data will support EPA and our partners in identifying priority actions to protect and restore water quality and in assessing whether collective efforts are improving water quality over time as water conditions are altered in response to climate change.

Over the next 4 years, EPA will continue efforts to restore water bodies that do not meet water quality standards, preserve and protect high-quality aquatic resources, and protect, restore, and improve wetland acreage and quality. The Agency will improve the way existing tools are used, explore how innovative tools can be applied, and enhance efforts and cross-media collaboration to protect and prevent water quality impairment in healthy watersheds. The Agency will use the National Aquatic Resource Survey to track the effectiveness of these combined efforts at protecting and improving water quality over time.

Results from the National Aquatic Resource Survey reinforce EPA's commitment to address nitrogen and phosphorus pollution as among the most serious and pervasive water quality problems. Programs for controlling nonpoint sources of pollution are key to reducing the number of impaired waters nationwide. The programs provide a multi-faceted approach to the problem, combining innovative development strategies to help leverage traditional tools. In addition to working with state, tribal, and local partners, EPA is collaborating with USDA to implement its National Water Quality Initiative (NWQI) and collaborating on other geographically based initiatives. Coordination of EPA's nonpoint source (CWA Section 319) grant funds and USDA Farm Bill funds is intended to protect water quality more effectively from runoff from agricultural lands and demonstrate improved effectiveness. USDA launched the NWQI in FY 2012, which targets 5 percent of USDA's Environmental Quality Incentives Program resources for water quality improvements in 165 specific watersheds across the nation. EPA is collaborating closely with USDA as it implements this program, and is now requiring states to assess water quality results in NWQI watersheds through Section 319 grant funds or other funding sources.

Development and implementation of total maximum daily loads (TMDLs) for CWA Section 303(d) listed impaired waterbodies is a critical tool for meeting water quality restoration goals. The CWA 303(d) listing and TMDL program has engaged with states to implement a new 10-year vision for the program to more effectively achieve the water quality goals of each state. The approach involves fostering effective integration across multiple programs, statutes, and agencies—CWA point and nonpoint source programs, other statutory programs within EPA's jurisdiction (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA], Resource Conservation and Recovery Act [RCRA], SDWA, and Clean Air Act [CAA]), and the water quality efforts of other federal agencies (e.g., the Departments of Agriculture, Interior, and Commerce). As part of this effort, EPA will continue to encourage states to identify priority waters for assessment, for development of TMDLs and other restoration plans for impaired segments, and for pursuit of protection approaches for unimpaired waters. EPA will work with states and other partners to develop and implement activities and watershed plans to restore and protect these waters.

In partnership with states, tribes, and local communities, EPA is implementing a clean water strategy that explores ways to improve the condition of the urban waterways that may have been overlooked or underrepresented in local environmental problem solving. The Agency will continue to play an active role as a member of the Urban Waters Federal Partnership to promote more efficient and effective use of federal resources and build new partnerships with states, tribes, local entities, and the private sector.

EPA will also lead efforts to restore and protect aquatic ecosystems and wetlands, particularly in key geographic areas, to address complex and cross-boundary challenges. Key geographic areas in the national water program include the Chesapeake Bay, the Great Lakes, the Gulf of Mexico, the U.S.–Mexico Border region, the Pacific Islands, Long Island Sound, the South Florida Ecosystem, the Puget Sound Basin, the Columbia River Basin, and the San Francisco Bay Delta Estuary. EPA will continue to work with and involve states, tribes, and interested stakeholders to set and achieve goals in these geographic areas.

EPA is heading up a multi-agency effort to restore and protect the Great Lakes through the Great Lakes Restoration Initiative.[10] In other parts of the nation, we will focus on nutrient pollution, which threatens the long-term health of important ecosystems such as the Chesapeake Bay. EPA will continue to work with states, tribes, and stakeholders in the Mississippi River Basin on nutrient pollution that is affecting the health of the Gulf of Mexico. Further, given the environmental catastrophe resulting from the

Deepwater Horizon BP oil spill, EPA will continue to take necessary actions to support efforts of federal and state trustees in the natural resource damage assessment to restore the Gulf of Mexico ecosystem. EPA shares in the role of being a Natural Resource Trustee with responsibility to conduct the natural resource damage assessment for the spill. In addition, EPA is also a member of the Gulf Coast Ecosystem Restoration Council, established under the RESTORE Act,[11] to restore the ecosystem and economy of the Gulf Coast region. Monitoring in the Gulf of Mexico under the National Aquatic Resource Survey will be important to fully document the long-term impacts of the spill and track the recovery of wetland and near-shore estuarine resources. This long-term effort by EPA and the states is an important complement to the project-specific and special-focus monitoring efforts underway as part of the Natural Resource Damage Assessment and BP Research funds.

To respond and adapt to the current and potential impacts of a changing climate on aquatic resources, including the current and potential impacts associated with warming temperatures, changes in rainfall amount and intensity, and sea level rise, EPA has developed a "National Water Program 2012 Strategy: Response to Climate Change." This strategy sets out long-term goals and specific actions contributing to national efforts to prepare for, and build resilience to, impacts of a changing climate on water resources. EPA is working with state, tribal, and local governments, as well as other partners, to implement actions addressing climate change challenges to the protection of water infrastructure, coastal and ocean waters, watersheds, and water quality.[12] For example, EPA has developed the Climate Resilience Evaluation and Assessment Tool (CREAT) to help water utilities assess vulnerability to a changing climate and take response actions. EPA is also defining actions that states can take starting in 2015 to adapt core clean water and drinking water programs (e.g., state revolving loan funds, water quality standards, and drinking water sanitary surveys) to a changing climate.

External Factors and Emerging Issues

Water Quality. Water quality programs face challenges such as increases in nutrient loadings and stormwater runoff, aging infrastructure, and population growth (which can increase water consumption and place additional stress on aging water infrastructures). The Agency is carefully examining the potential impacts of and solutions to these issues, including effects on water quality and quantity that could result in the long term from a changing climate. The Agency will continue implementing the National Aquatic Resource Surveys to support collection of nationally consistent data to support these efforts. The Agency will also continue to implement the WaterSense program as a means to help communities address challenges posed by water scarcity through demand management.[13]

Population Density. In 2010, 52 percent of the U.S. population lived in coastal watershed counties which comprise less than 20 percent of the total land area of the U.S., excluding Alaska. The population density of coastal watershed counties is over five times greater than the corresponding inland counties. If current population trends continue, the already crowded U.S. coast will see population grow from 123 million people to nearly 134 million people by 2020, placing more of the population at increased risk from a changing climate and exposing these fragile coastal ecosystems to greater pressures. Population growth in coastal watershed counties is impacting water quality and other coastal resources within National Estuary Program (NEP) study areas. NEPs work to address the impacts of growth by focusing their long-term management and annual work plans on priorities such as stormwater management, reduction of excess nutrient loadings, and promotion of low-impact development and green infrastructure. Also, EPA's climate-ready estuaries program provides the capacity for NEPs and coastal stakeholders to develop vulnerability assessments.[14]

Technology Market Opportunities. EPA is working both internally and with external partners and stakeholders to discuss plans for advancing innovative technologies that will be important to the continued protection and restoration of waters. Some key market opportunities for innovative technology to help address current and emerging water resource issues were identified in EPA's "Blueprint for Integrating Technology Innovation into the National Water Program."[15] They include:

- Energy reduction and recovery at drinking water and wastewater facilities;
- Nutrient recovery from wastewater;
- Improving and "greening" the nation's infrastructure;
- Water reuse;
- Improved and less expensive monitoring;
- Improving reliability of small drinking water systems;
- Technology evaluation and performance;
- Reducing water impacts from domestic energy production;
- Resiliency of water infrastructure; and
- Improving water quality of oceans, estuaries, and watersheds.

Applied Research

EPA's research will help ensure that natural and engineered water systems have the capacity and resiliency to meet current and future water needs for the range of water use and ecological requirements. These efforts will help position the Agency to meet the future needs in water resources management by:

- Gathering, synthesizing, and mapping the necessary environmental, economic, and social information of watersheds, from local to national scales, to determine the condition, future prospects, and restoration potential of the nation's watersheds;
- Conducting and integrating EPA nitrogen and co-pollutant research efforts across multiple media and various temporal and spatial scales, including support for developing numeric nutrient criteria, decision-support tools, and cost-effective approaches to nutrient reduction;
- Promoting the economic recovery of water, energy, and nutrient resources through innovative municipal water services and whole-of-system assessment tools;
- Developing innovative tools, technologies, and strategies for managing water resources (including stormwater) today and over the long term as the climate and other conditions change; and
- Evaluating individual and groups of contaminants for the protection of human health and the environment.

End Notes

1. U.S. EPA, 2006. *Wadeable Streams Assessment: A Collaborative Survey of the Nation's Streams.* EPA 841-B-06-002. Available at http://www.epa.gov/owow/streamsurvey. See also EPA, 2010. *National Lakes Assessment: A Collaborative Survey of the Nation's Lakes.* EPA 841-R-09-001. Available at http://www.epa.gov/lakessurvey/pdf/nla_chapter0.pdf.
2. Resilience is the ability of a system to absorb change and disturbance and retain its fundamental function and/or structure.
3. For more information on these programs and their performance measures, see the annual National Water Program Guidance, available at http://www.epa.gov/water/waterplan/index.html.
4. FY 2014–2015 Agency Priority Goal: Improve public health protection for persons served by small drinking water systems, which account for more than 97 percent of public water systems in the U.S., by strengthening the technical, managerial, and financial capacity of those systems. By September 30, 2015, EPA will engage with an additional ten states (for a total of 30 states) and three tribes to improve small drinking water system capability to provide safe drinking water, an invaluable resource.

5. FY 2014–2015 Agency Priority Goal: Improve, restore, and maintain water quality by enhancing nonpoint source program leveraging, accountability, and on-the-ground effectiveness to address the nation's largest sources of pollution. By September 30, 2015, 100 percent of the states will have updated nonpoint source management programs that comport with the new Section 319 grant guidelines that will result in better targeting of resources through prioritization and increased coordination with USDA.

6. For information visit http://water.epa.gov/polwaste/nps/cwact.cfm.

7. For information on the Integrated Planning process, see http://cfpub.epa.gov/npdes/integratedplans.cfm.

8. For information on managing wet weather with green infrastructure, see http://cfpub.epa.gov/npdes/home.cfm?program_id=298.

9. For information on National Aquatic Resource Surveys, see http://water.epa.gov/type/watersheds/monitoring/aquaticsurvey_index.cfm.

10. Great Lakes Restoration Initiative is focused on toxic substances and areas of concern, invasive species, nearshore health and nonpoint source pollution, habitats and species, and integrated solutions to cross-cutting issues. Information is available at http://greatlakesrestoration.us/.

11. Please see http://www.restorethegulf.gov/council/about-gulf-coast-ecosystem-restoration-council.

12. EPA National Water Program 2012 Strategy: Response to Climate Change, information available at http://water.epa.gov/scitech/climatechange/2012-National-Water-Program-Strategy.cfm. United States Global Change Research Program, information available at http://www.globalchange.gov/resources/reports.

13. For information on WaterSense, see http://www.epa.gov/watersense/.

14. For information on climate-ready estuaries, see http://water.epa.gov/type/oceb/cre/index.cfm.

15. "Blueprint for Integrating Technology Innovation into the National Water Program," information is available at http://water.epa.gov/blueprint.cfm.

Goal 3: Cleaning Up Communities and Advancing Sustainable Development

Clean up communities, advance sustainable development, and protect disproportionately impacted low-income and minority communities. Prevent releases of harmful substances and clean up and restore contaminated areas.

Uncontrolled releases of waste and hazardous substances can contaminate our drinking water and land and threaten healthy ecosystems. Local land use and infrastructure investments can also generate unanticipated environmental consequences, such as increased stormwater runoff, loss of open space, and increased greenhouse gas emissions. EPA leads efforts to preserve, restore, and protect our land, air, and water so that these precious resources are available for both current and future generations. We will continue our work to prevent and reduce exposure to contaminants, accelerate the pace of cleanups, and reduce the environmental impacts associated with land use across the country. EPA works collaboratively with international, state, and tribal partners to achieve these aims. In addition, we will work with communities to address risks posed by intentional and accidental releases of hazardous substances into the environment

Objectives

- **Promote Sustainable and Livable Communities.** Support sustainable, resilient, and livable communities by working with local, state, tribal, and federal partners to promote smart growth, emergency preparedness and recovery planning, redevelopment and reuse of contaminated and formerly contaminated sites, and the equitable distribution of environmental benefits.
- **Preserve Land.** Conserve resources and prevent land contamination by reducing waste generation and toxicity, promoting proper management of waste and petroleum products, and increasing sustainable materials management.
- **Restore Land.** Prepare for and respond to accidental or intentional releases of contaminants and clean up and restore polluted sites for reuse.
- **Strengthen Human Health and Environmental Protection in Indian Country.** Directly implement federal environmental programs in Indian country and support federal program delegation to tribes. Provide tribes with technical assistance and support capacity development for the establishment and implementation of sustainable environmental programs in Indian country.

Across multiple objectives:

FY 2014–2015 Agency Priority Goal: Clean up contaminated sites to enhance the livability and economic vitality of communities. By September 30, 2015, an additional 18,970 sites will be made ready for anticipated use protecting Americans and the environment one community at a time.

Strategic measures associated with this Goal are on pages 67 through 70. More information on Agency Priority Goals is available at http://goals.performance.gov/agency/epa.

and ensure that communities have an opportunity to participate in environmental decisions that affect them. Our efforts are guided by scientific data, research, and tools that alert us to emerging issues and inform decisions on managing materials and addressing contaminated properties.

Promote Sustainable and Livable Communities

EPA supports the goals of urban, suburban, and rural communities to grow in ways that improve the environment, human health, and quality of life for their residents.[1] With the support of partners working hand in hand across all levels of government, communities can grow in ways that also strengthen the economy, help them adapt to a changing climate, improve their resiliency to disasters, use public resources more efficiently, revitalize neighborhoods, and improve access to jobs and amenities. By making sustainable infrastructure investments, communities can successfully build innovative and functional systems on neighborhood streets and sidewalks to deal with the runoff from stormwater and still provide easy access for pedestrians, bicyclists, on-street parking, and other beneficial uses. By adopting local planning and zoning codes that account for the environmental impacts of development, the private sector can more easily construct market-ready green buildings serving a range of housing needs. Communities also can benefit from tools, technology, and research that better engage citizens and inform local decision making to support smart and sustainable growth.

EPA recognizes environmental justice, children's health, and sustainable development are all at the intersection of people and place. These goals are not mutually exclusive. Throughout all our work to achieve more livable communities, EPA is committed to ensuring we focus on children's health and environmental justice.[2] Recognizing that minority or low-income communities may face disproportionate environmental risks, we work to protect these communities from adverse health and environmental effects and to ensure they are given the opportunity to participate meaningfully in environmental decisions and efforts to plan for future growth and development that directly affect residents.[3] EPA's ability to optimize the benefits of sustainability requires making environmental justice a normal part of how EPA does business rather than an ad hoc activity.

Sustainable and livable communities balance their economic and natural assets so that the diverse needs of residents can be met with limited environmental impacts. EPA's community-based programs help to accomplish these goals by working with communities, other federal agencies, state, tribal, and regional governments, private and nonprofit sectors, and national experts to encourage equitable development strategies that have better outcomes for air quality, water quality, and land preservation and revitalization. In particular, EPA's smart growth program delivers technical assistance to communities through contract- and grant-based programs to help them base their growth and development decisions on strategies that are smart, sustainable, and supportive of improved environmental, public health, and economic outcomes.

For example, EPA has been working with the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Transportation (DOT) since 2009 to align federal resources and improve the environmental outcomes from development. Through technical assistance, grants, and training, these three agencies have worked together to assist hundreds of communities to plan for and invest in growth that improves access to affordable housing, increases transportation options, and expands choices for all citizens.[4] All three agencies use a common set of "livability principles" to better coordinate their efforts and investments in a manner that will better protect the environment, promote equitable development, and help address the challenges of a changing climate.

EPA's brownfields program emphasizes environmental and human health protection in a manner that stimulates economic development and job creation by awarding competitive grants to assess and clean up brownfield properties that are contaminated, or perceived to be contaminated, with hazardous substances and/or petroleum contamination and by providing job training opportunities, particularly in underserved communities.[5] A 2012 EPA program evaluation concluded that cleaning up brownfield

properties leads to residential property value increases of 5.1 to 12.8 percent.[6] In addition, a 2011 study of five pilot projects revealed that cleaning up contaminated properties for neighborhood commercial use may contribute to a 32 to 57 percent reduction in vehicle miles traveled compared to alternative development scenarios.[7] This reduction results from increased accessibility of neighborhood-based services and goods, requiring less frequent trips by residents outside the immediate area.

The brownfields program also provides funding for state and tribal environmental response programs as well as outreach and technical assistance to communities. Area-wide planning approaches for brownfields work help to identify important local factors in a coordinated manner: viable end uses of individual or groups of brownfield properties; beneficial air and water infrastructure investments in these areas; and added environmental improvements in the surrounding area to revitalize the community. Taken together, these efforts will enhance the livability and economic vitality of neighborhoods in and around brownfield properties.

In addition to the brownfields activities, EPA promotes livable communities though its efforts to prevent chemical accidents. EPA's risk management program requires facilities with one or more covered chemicals in a process to analyze the potential for accidental releases and possible consequences, develop an accident prevention program, and coordinate with the community to ensure that all are prepared for responding to a release. The facility must include this information in a Risk Management Plan (RMP) and submit this RMP electronically to EPA, which makes the information available to federal, state, and local officials (e.g., fire fighters) who work on chemical accident preparedness, prevention, and response. There are approximately 13,000 active RMPs currently on file.

External Factors and Emerging Issues

There are several external factors and emerging issues that may affect the overall success of the Agency's brownfields, chemical risk management, and smart growth programs. These include:

- The continued challenges posed by foreclosures and vacant, blighted, and neglected properties. Increased attention may be required for the siting of new domestic manufacturing in formerly abandoned or blighted areas and the potential impacts on local communities.
- The impacts of increased extremes of weather on a community's redevelopment and revitalization plans, including whether these projects are resilient enough to withstand the threat of flooding or loss of power from natural or man-made disasters.
- The lack of capacity in many tribal, local, regional, and state governments to adequately identify the environmental outcomes associated with land use and infrastructure decisions, particularly given the demands on already tight budgets.
- The importance of engaging in efforts that involve stakeholders beyond federal agencies. These efforts include supporting local responders, advancing additional chemical plant safety measures, and standardizing the best practices of industry leaders.
- The need to explore how EPA's legal authorities and policies can be used to further improve coordination among federal agencies and stakeholders in our efforts to identify and address the potential hazards in chemical plant safety.

Preserve Land

To prevent future environmental contamination and to protect the health of the estimated 20 million people living within a mile of hazardous waste management facilities,[8] EPA and its state partners continue their efforts to issue, update, or maintain Resource Conservation and Recovery Act (RCRA) permits for approximately 20,000 hazardous waste units (such as incinerators and landfills) at these facilities. EPA also will issue polychlorinated biphenyl (PCB) cleanup, storage, and disposal approvals each year since this work cannot be delegated to the states or tribes. With the October 2012 promulgation of the Hazardous Waste Electronic Manifest Establishment Act, improving and modernizing hazardous waste transportation and tracking has become an important Agency focus. EPA will be working with state agencies, other partners and stakeholders, and the public to implement the requirements of the new law. These include the use of electronic tracking

(e-Manifest), which will provide superior data availability, transparency, and cost savings when compared with the use of paper manifests, and the establishment of an advisory board to provide recommendations to the Agency on the implementation of this new e-Manifest approach.

As part of its sustainable materials management program, EPA is currently promoting three national strategies—the Federal Green Challenge, the Electronics Challenge, and the Food Recovery Challenge. These strategies are focused on using less environmentally intensive and toxic materials and employing downstream solutions, like reuse and recycling, to conserve our resources for future generations.[9] EPA is working with other federal agencies, state and tribal governments, and non-governmental organizations to promote sustainability goals through these and other initiatives. For example, EPA and USDA are partnering through the U.S. Food Waste Challenge to address sustainable food management from farm to final disposition.[10] Through this partnership, EPA is working to reduce food waste, which is the largest component (21 percent) of municipal solid waste discarded.[11] In keeping with the RCRA mandate to conserve resources and energy, and recognizing that an estimated 42 percent of greenhouse gas (GHG) emissions are attributable to materials management activities, EPA continues to create innovative strategies that emphasize sustainable materials management. These efforts—to identify and reduce or minimize the impact of waste and capture resultant GHG benefits through more sustainable materials management throughout all life-cycle stages (from extraction of raw materials through end of life)—are critical, along with other activities, for offsetting the use of virgin materials.[12,13]

To reduce the risk posed by underground storage tanks (USTs) located at more than 200,000 facilities throughout the country, EPA and states are working to ensure that every UST system is inspected at least once every 3 years and all facility operators are trained. As fuel types change, UST systems must be equipped to safely store the new fuels. For example, EPA is working to ensure biofuels are stored in compatible UST systems.

External Factors and Emerging Issues

EPA must be prepared to address significant waste management issues anticipated for the future.

- The potential impacts of a changing climate, including extreme weather events, such as tornadoes and hurricanes.
- Continued changes in technology and the emergence of new waste streams that result from new methods of domestic energy development, among other contributing sources.
- General trend away from landfills and toward the recycling of materials using new technologies that will require further evaluation.

Restore Land

Challenging and complex environmental problems persist at many contaminated properties. These include contaminated soil, sediment, and groundwater that can cause human health concerns. Together with our federal, state, and tribal partners, EPA's Superfund program, RCRA corrective actions, leaking underground storage tank and brownfields cleanup programs, and the Toxic Substances Control Act (TSCA) cleanups of PCBs reduce risks to human health and the environment through site cleanup and the return of restored land to productive use. EPA is establishing an Agency Priority Goal for FY 2014–2015, which is a continuation of the Priority Goal for FY 2012–2013, to measure and report sites ready for anticipated use (RAU). RAU is an indicator that the local, state, or federal agency has determined that the necessary cleanup goals, engineering controls, and institutional controls have been implemented at the site to make it available for a community's current or reasonably anticipated future use or reuse. EPA's Superfund, RCRA corrective action, leaking underground storage tank (LUST), and brownfields cleanup programs all contribute to the Priority Goal to make sites ready for anticipated use.[14] Although each program establishes its own targets, the collective nature and combined overall target of the RAU Priority Goal offers an opportunity for EPA cleanup programs to work together to identify lessons learned, efficiencies, and opportunities to advance site cleanup. From the inception of the respective programs to the end of FY

2013, 441,333 sites were made RAU, corresponding to over 2.3 million acres.[15]

There are multiple benefits associated with cleaning up contaminated sites: reducing mortality and morbidity risk; preventing and reducing human exposure to contaminants; making land available for commercial, residential, industrial, or recreational reuse; and promoting community economic development. A 2011 study suggests that Superfund cleanups reduce the incidence of congenital anomalies in infants of mothers living within 2,000 meters of a site by roughly 20–25 percent.[16] In another case, EPA contracted with researchers at Duke University and the University of Pittsburgh to conduct a study to determine the effects of Superfund site status on housing values. The study found that when sites are cleaned up and deleted from the National Priorities List (NPL), properties within 3 miles of the sites experience an 18.6–24.5 percent increase in value.[17]

Over the past 3 years, EPA has implemented the Integrated Cleanup Initiative (ICI) in an effort to improve the efficiency and effectiveness of its land cleanup programs. More than 150 different actions were conducted under ICI from FY 2010 through FY 2012 by the various land cleanup programs involved in the effort. These actions to improve efficiency and effectiveness are now part of current business procedures and cleanup processes. For example, EPA initiated a series of project management pilots to explore options for accelerating the pace of Superfund site cleanups from the remedial investigation/feasibility study (RI/FS) phase of cleanup through site completion. Three of these pilots improved the remedial design/remedial action (RD/RA) process and were completed in FY 2012. EPA's Superfund program will consider applying the time- and cost-saving approaches examined in these pilots wherever appropriate.[18]

EPA's Superfund program is undertaking a comprehensive review of all aspects of the program. The goal of this review is to determine the best way to maintain the program's effectiveness in protecting human health and the environment by more efficiently managing its site cleanup process and program resources. In the same spirit, in early 2013, EPA worked with state partners and stakeholders to pilot an ambitious effort to apply "Lean" principles to the facility investigation phase of RCRA corrective action cleanup as a means to accelerate the process for a typical facility by several years.[19] By applying Lean techniques, EPA expects to achieve performance improvements and to continue setting and achieving ambitious goals for environmental progress. The Agency will continue to solicit new ideas and practices to improve EPA's cleanup programs.

Another challenge to protecting our land resources from contamination is pollution from leaking underground storage tanks (USTs). While considerable progress has been made to clean up leaks from USTs, a backlog of over 80,000 sites remains and the number of cleanups per year is decreasing. To understand the makeup of remaining UST releases and the decline in the number of cleanups per year, EPA conducted a two-phase, data-driven analysis of UST cleanups as of 2006 and 2009. The study compiled and analyzed available data from 14 state [L]UST programs and identified key findings and potential opportunities to help reduce the number of remaining UST cleanups. To address new and existing LUST sites, EPA, in partnership with state and tribal programs, is developing and implementing strategies to address technical challenges, leverage best practices, and support management, oversight, and enforcement activities. In addition, EPA has implemented improvements in the LUST prevention program by increasing inspection frequency and other prevention efforts, and there has been a corresponding decrease in new confirmed releases. The efforts of the prevention program and the continued reduction in new confirmed releases, along with the earlier detection of releases, will remain critical factors in backlog reduction.[20]

In addition to cleanup and revitalization, EPA's hazardous waste programs also are working to reduce the energy use and environmental footprint during the investigation and remediation of hazardous waste sites. As part of this effort, EPA's Superfund program evaluated its green remediation strategy to assess its experiences in implementing the strategy, to determine a baseline against which to measure future progress, and to develop the best metrics for measuring the program's success. The evaluation's findings are being used to prepare the next phase of the strategy to reduce the energy, water, and materials used during site cleanups while at the same time ensuring that protective remedies are implemented.[21]

Throughout this work, EPA is enhancing its engagement with local communities and stakeholders so that they may meaningfully participate in decisions on land cleanup, emergency response, and management of hazardous substances and waste. Enhancing community engagement helps to ensure transparent and accessible decision-making processes, to deliver information that communities can use to participate effectively, to improve EPA responsiveness to community perspectives, and to ensure timely cleanup decisions.

National preparedness is an essential component in EPA's work that entails responding to large-scale emergencies that may involve chemicals, oil, biological agents, radiation, weapons of mass destruction, or natural catastrophes. In recent years, the U.S. has faced considerable challenges in responding to nationally significant incidents and large-scale emergencies, including Hurricane Katrina, the Deepwater Horizon oil spill, the Fukushima Daiichi nuclear power plant emergency in Japan, and Hurricane Sandy. Maintaining our preparedness level and ensuring that emergency responders are able to address chemical spills, unplanned releases of other hazardous materials, and other catastrophes are vital responsibilities. Consistent with the government-wide National Response Framework and the National Disaster Recovery Framework, EPA prepares for the possibility of multiple, simultaneous, nationally significant incidents across several regions and provides guidance and technical assistance to state, tribal, and local planning and response organizations. EPA recognizes the important role of state and local emergency responders and works with them to strengthen their preparedness and provide technical assistance when significant man-made or natural incidents strain their staffing and budget resources.

External Factors and Emerging Issues

Hazardous waste programs are intended to provide permanent solutions to contamination at sites or facilities to the extent practicable. As appropriate, EPA must incorporate emerging science into decision making to maintain its commitment to provide permanent solutions.

- Complications can arise when new scientific information (e.g., new toxicity information or a new analytical method) calls into question previous determinations about the need for or the scope and methods of cleanup at a site. Such scientific and technological developments may complicate relations with affected communities, risk communication, site investigation, remedy selection, and resource allocation within the program.
- Changes in precipitation, sea level rise, and storm surge, for example, may impact remedies and alter their effectiveness. Some evidence of this was apparent during the Hurricane Sandy event along the coasts and waterways of New Jersey, New York, Connecticut, and Rhode Island. EPA might appropriately consider the effects on planned, current, and completed cleanups that will occur from the impacts of a changing climate.

Strengthen Human Health and Environmental Protection in Indian Country

Under federal environmental statutes, EPA is responsible for protecting human health and the environment in Indian country. EPA's commitment to tribal environmental and human health protection has been steadfast for nearly 30 years, as formally established in the Agency's 1984 Indian Policy.[22] EPA works with over 560 federally recognized tribes located across the United States to improve environmental and human health outcomes. Approximately 56 million acres are held in trust by the United States for various Indian tribes and individuals. Over 10 million acres of individually owned lands are still held in trust for allotees and their heirs.[23] Difficult

environmental and health challenges remain in many of these areas, including lack of access to safe drinking water, sanitation, adequate waste facilities, and other environmental safeguards taken for granted elsewhere.

In collaboration with our tribal government partners, EPA will engage in a two-part strategy for strengthening human health and environmental protection in Indian country. First, EPA will ensure that its environmental protection programs are implemented in Indian country either by EPA or through implementation of environmental programs by tribes themselves. Second, EPA will provide resources through grant funds and technical assistance for federally recognized tribes to create and maintain effective environmental program capacity.

External Factors and Emerging Issues

Tribal environmental and human health needs are significant. For example, the lack of access to safe drinking water and basic sanitation for tribes continues to threaten the public health of American Indian and Alaska Native (AI/AN) communities. Approximately 12 percent of AI/AN homes do not have safe water and/or basic sanitation facilities.[24] This is high compared to the non-native homes in the U.S. that lack such infrastructure. EPA, along with over four federal departments and agencies, provides a range of federal water infrastructure programs to tribes, consistent with our legal authorities and the federal trust responsibility.

There is a broad spectrum among tribes with respect to population, culture, income, geography, economic development, environmental program management expertise, and priorities. EPA also recognizes that many tribes may not have the capacity to implement programs in a manner similar to a state, where programmatically available. Further, the decision to be treated in a manner similar to a state (TAS) is voluntary, and may not be a priority to a tribe. Currently, over 200 tribes are not eligible for jurisdictional reasons to receive a TAS designation to implement federally authorized environmental protection programs, yet they are partnering with EPA to build programmatic capacity in other ways. EPA continues to play a critical role in ensuring environmental protection in Indian country.

Applied Research

In the area of cleaning up communities, research will allow EPA to identify and apply approaches that better inform and guide environmentally sustainable behavior, protect and promote human health and ecosystems, and provide the products and services needed for mitigation, management, remediation and long-term stewardship of contaminated sites. Research will provide Agency, state, tribal, and local decision makers with the knowledge needed to make smart, systems-based decisions that will inform a balanced approach to their cleanup and development needs, resulting in:

- More options for eliminating waste, safer options for disposal of unavoidable waste, and access to more options for beneficial re-use and recovery of materials and energy from waste.
- Reduced risk from contaminated sites, less costly remediation, faster return of property to economic use, and more comprehensive protection of valuable ground water resources.
- Enhanced ability to adequately consider children's unique susceptibilities and vulnerabilities.

End Notes

1. For more information about the impact of the built environment on the natural environment and public health, see "Our Built and Natural Environments: A Technical Review of the Interactions Between Land Use, Transportation, and Environmental Quality (Second Edition, 2013)" at http://www.epa.gov/smartgrowth/built.htm.
2. For more information about EPA's focus on Environmental Justice, see http://www.epa.gov/environmentaljustice/index.html.
3. For more information about the connections between smart growth and environmental justice, see "Creating Equitable, Healthy, and Sustainable Communities: Strategies for Advancing Smart Growth, Environmental Justice, and Equitable Development" (EPA 231-K-10-005, 2013) at http://epa.gov/smartgrowth/equitable_development_report.htm.
4. For more information about the HUD–DOT–EPA Partnership for Sustainable Communities, see www.sustainablecommunities.gov.

5. For more information about EPA's brownfields program, see http://www.epa.gov/brownfields.

6. Kevin Haninger, Lala Ma, and Christopher Timmins. 2012. "Estimating the Impacts of Brownfields Remediation on Housing Property Values." *Duke Environmental Economics Working Paper Series*. Working Paper EE12-08. The program evaluation is available at http://sites.nicholasinstitute.duke.edu/environmentaleconomics/files/2013/01/WP-EE-12-08.pdf.

7. U.S. EPA, Office of Brownfields and Land Revitalization, *Air and Water Impacts of Brownfields Redevelopment: A Study of Five Communities*, April 2011, EPA-560-F-10-232.

8. Estimate drawn from OSWER Near Site Population Database, an internal EPA database that merges facility size and location information from RCRAInfo with population data, at the block and block group levels, from the U.S. Census Bureau's 2000 Census. The demographics were captured around the total number of facilities that have approved controls in place that result in the protection of this population (20 million people).

9. For more information on the Federal Green Challenge, see http://www.epa.gov/federalgreenchallenge.

   For more information on the Electronics Challenge, see http://www.epa.gov/wastes/conserve/smm/electronics/.

   For more information on the Food Recovery Challenge, see http://www.epa.gov/wastes/conserve/smm/foodrecovery/.

10. For more information on the U.S. Food Waste Challenge, see http://www.usda.gov/oce/foodwaste/index.htm.

11. For more information, see EPA report, "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2011," at http://www.epa.gov/waste/nonhaz/municipal/pubs/MSWcharacterization_508_053113_fs.pdf.

12. U.S. EPA, Opportunities to Reduce or Avoid Greenhouse Gas Emissions through Materials and Land Management Practices, September 2009.

13. For more information on sustainable materials management, see *Sustainable Materials Management: The Road Ahead*. EPA 530R-09-009. Available at http://www.epa.gov/smm/pdf/vision2.pdf.

14. FY 2014–2015 Agency Priority Goal: Clean up contaminated sites to enhance the livability and economic vitality of communities. By September 30, 2015, an additional 18,970 sites will be made ready for anticipated use, protecting Americans and the environment one community at a time. For the LUST program, data as to whether institutional controls are in place are unavailable. EPA is exploring with states whether the data can be made available.

15. Although separate performance targets are not developed for the number of acres RAU, the acres RAU are reported at the end of each fiscal year.

16. Janet Currie, Michael Greenstone, and Enrico Moretti. 2011. "Superfund Cleanups and Infant Health." American Economic Review, 101(3): 435-41.

17. S. Gamper-Rabindran and C. Timmins. 2013. "Does cleanup of hazardous waste sites raise housing values? Evidence of spatially localized benefits," Journal of Environmental Economics and Management.

18. A recent directive from EPA's Superfund program shares the lessons learned from these RD/RA pilot studies. This directive can be found at http://www.epa.gov/oswer/docs/ici/broader_applications_rd_ra_pilot_project_lessons_learned.pdf.

19. Lean principles focus on identifying and enhancing valuable process steps while reducing wasteful steps. See also http://www.epa.gov/lean/government/index.htm.

20. For more information, please see *The National LUST Cleanup Backlog: A Study of Opportunities* at http://www.epa.gov/swerust1/cat/backlog.html.

21. More information about Superfund and green remediation at EPA is available at http://www.epa.gov/superfund/greenremediation.

22. The "EPA Policy for the Administration of Environmental Programs on Indian Reservations" can be found at http://www.epa.gov/tp/pdf/indian-policy-84.pdf.

23. For more information, please see http://www.bia.gov/FAQs/index.htm.

24. Indian Health Service, Sanitation Facilities Construction Program 2011 Annual Report.

Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution

Reduce the risk and increase the safety of chemicals and prevent pollution at the source.

The Agency's chemical safety and pollution prevention programs are at the forefront of EPA's efforts to advance a sustainable future. Chemicals are often released into the environment as a result of their manufacture, processing, use, and disposal. The Agency uses a variety of approaches and tools to assess, prevent, and reduce chemical releases and exposures (e.g., conducting risk assessments, assessing chemical alternatives, and taking other risk management actions). The Agency engages and empowers a variety of stakeholders and partners to drive innovation and address related social and economic issues, especially in communities with vulnerable populations or environmental justice concerns. Vulnerable populations, including low-income and minority and indigenous populations, may be disproportionately impacted by, and thus particularly at risk from, exposure to chemicals. In addition, research shows that children receive greater relative exposures to chemicals because they inhale or ingest more air, food, and water on a body-weight basis than adults do.[1] The Agency empowers stakeholders by working to ensure access to chemical data and other information, analytical tools, and other forms of expertise. The Agency communicates frequently with other federal agencies to share information and coordinate proposed and ongoing activities and will continue to expand these efforts for more effective governance.

Objectives

- **Ensure Chemical Safety.** Reduce the risk and increase the safety of chemicals that enter our products, our environment, and our bodies.

  FY 2014–2015 Agency Priority Goal: Assess and reduce risks posed by chemicals and promote the use of safer chemicals in commerce. By September 30, 2015, EPA will have completed more than 250 assessments of pesticides and other commercially available chemicals to evaluate risks they may pose to human health and the environment, including the potential for some of these chemicals to disrupt endocrine systems. These assessments are essential in determining whether products containing these chemicals can be used safely for commercial, agricultural, and/or industrial uses.

- **Promote Pollution Prevention.** Conserve and protect natural resources by promoting pollution prevention and the adoption of other sustainability practices by companies, communities, governmental organizations, and individuals.

Strategic measures associated with this Goal are on pages 71 through 72. More information on Agency Priority Goals is available at http://goals.performance.gov/agency/epa.

Chemicals are involved in the production of everything from our homes and cars to the cell phones we carry and the food we eat. Thousands of chemicals have become ubiquitous in our everyday lives and everyday products, and are present in our environment and our bodies. The Agency continues to believe that the Toxic Substances Control Act (TSCA) should be modernized to strengthen the tools available in TSCA and give EPA the mechanisms and authorities to expeditiously target and promptly assess and regulate new and existing chemicals.[2] There remain large, troubling gaps in the available data and state of knowledge on many widely used chemicals in commerce, and EPA's authority to require development and submission of information and testing data is limited by legal hurdles and procedural requirements. Accordingly, the Administration in September 2009 issued a statement on Essential Principles for Reform of Chemicals Management Legislation to help inform efforts by the Congress to reauthorize and strengthen TSCA.

Another statute that helps EPA in its work to address chemical risks is the 1990 Pollution Prevention Act (PPA).[3] Under this law, which established as a national policy the prevention of pollution before it is generated, EPA fosters the development of pollution prevention (P2) solutions and promotes increased use of those solutions. P2 solutions include safer, greener materials and products, and improved practices, such as conservation techniques and reuse and remanufacturing of hazardous secondary materials in lieu of their discard. These strategies have proven highly effective in advancing sustainability, resulting in major reductions in hazardous materials, greenhouse gases, and water use. These strategies have simultaneously increased the availability and use of safer chemicals and products, and helped businesses increase job growth and competitiveness. EPA will continue these successful strategies by: providing technical assistance and training to states, tribes, businesses, and others on P2 solutions; developing resources and tools, such as calculators and guidelines, to facilitate development and use of P2 solutions; and further enhancing the ability of the public and the business sector to make environmentally friendly purchasing decisions.

Ensure Chemical Safety

Chemical safety remains one of EPA's highest priorities. EPA employs a variety of strategies under several statutes to ensure the safety of chemicals, adequately protect against unreasonable public health or environmental risks, and foster sustainability. These include:

- Acting under TSCA to ensure that new industrial and commercial chemicals do not pose unreasonable risk before they are introduced into commerce;
- Assessing existing chemicals already in use before TSCA took effect (62,000 chemicals were already in use in commerce before 1978) and acting to reduce identified risks and to identify and promote safer alternatives;
- Empowering the public and decision makers by making chemical safety information more widely available and usable;
- Acting under the Federal Insecticide, Rodenticide, and Fungicide Act (FIFRA) and the Endangered Species Act to ensure that pesticides are used safely and effectively; and
- Developing and applying protocols to assess chemicals' potential to interact with the endocrine system.

EPA uses predictive techniques to assess the safety of new chemicals in the face of information limitations imposed by TSCA. More daunting has been the challenge of assessing and acting where needed on the more than 60,000 existing chemicals "grandfathered" under the statute.[4] On that front, the Agency has made considerable progress in recent years, working in cooperation with stakeholders by using all available information to put these chemicals through a prioritization methodology. This effort led to the identification of a set of more than 80 chemicals (TSCA work plan chemicals) for further assessment. EPA believes that these are the chemicals most in need of risk assessment and that adequate data exist for that purpose. The first five risk assessments for TSCA work plan chemicals were made available by EPA for public and peer review less than a year after they were publicly identified for assessment.

Assessments of 23 additional chemicals—including 20 flame retardants—were announced in 2013. Looking forward, EPA plans to assess all of the remaining work plan chemicals to initiate risk management actions as appropriate, and identify additional work plan chemicals for subsequent priority assessment. EPA is establishing an FY 2014–2015 Agency Priority Goal for this effort.[5]

Recognizing the crucial role that the public, state, tribal, and local partners, institutions, and industry play in ensuring chemical safety, EPA has expanded web access to the Agency's chemical information and assessment tools, with a focus on identifying safer chemicals. At the same time, two newly developed electronic tools will greatly improve data quality and public accessibility. These are the Chemical Information System (CIS), which will speed the Agency's transition to electronic reporting and processing for required chemical safety information, and the interactive ChemView Portal, which will enable both internal and external users to access TSCA chemical data stored in EPA systems quickly and easily. Planned enhancements to CIS will extend electronic reporting to nearly all required TSCA submissions and integrate the system with scientific tools, dashboards, and models used in making chemical management decisions. In addition, EPA is working to expand the ChemView Portal to further broaden public access to TSCA chemical information, and has plans to enable faster, automated posting of non-confidential TSCA data to EPA's public websites. These electronic tools are components of the Agency's Next Generation Compliance initiative, aimed at designing more effective regulations that are easier to implement for improving compliance and environmental outcomes throughout the life cycle of hazardous materials; shifting toward electronic reporting by regulated entities to ensure more accurate, complete, and timely information; and expanding transparency.

EPA will make major strides in guarding against exposure to chemicals that continue to pose potential risks to human health and the environment even after their hazards have been identified and certain uses have been phased out. For example, to continue to reduce childhood blood lead levels, EPA is working in partnership with states and tribes to certify hundreds of thousands of renovators and contractors on lead hazard management. More than 461,000 individuals have been certified by EPA alone, and nearly 130,000 firms have been certified by EPA and the states through April 2013. Certification coupled with public outreach is intended to expand public awareness of lead-based paint risks as well as the requirements for the use of lead-safe practices in renovation, remodeling, and painting activities in millions of older homes.[6,7]

On a broader scale, EPA is looking comprehensively across statutes to determine the best tools to apply to specific problems. For example, the Agency is exploring how to use FIFRA and TSCA to ensure that drinking water is protected from pesticides and industrial chemicals, and that chemicals found in drinking water are being screened for endocrine disrupting properties using the authorities of the Safe Drinking Water Act (SDWA) (including issuance of test orders), the Federal Food, Drug, and Cosmetic Act (FFDCA), and FIFRA.

In addition, EPA is continuing its work to increase the safety of chemicals and prevent pollution on an international scale. This is being accomplished primarily through cooperative engagement with international bodies such as the United Nations Environment Programme (UNEP) and the Organization for Economic Cooperation and Development (OECD) on scientific and technical issues. The key focus areas include harmonization of chemical test guidelines, regulatory coordination, negotiation, and implementation of global/regional standards, and instruments and assistance on pollution prevention activities. EPA is working collaboratively with stakeholders both domestically and internationally to develop approaches to better assess nanomaterials,[8] including work with the OECD on internationally harmonized test guidelines.

Over the next 4 years, EPA will manage a comprehensive pesticide risk reduction program through science-based registration and reevaluation processes, a worker safety program, certification and training activities, and support for integrated pest management.

- EPA's current pesticide review processes focus on ensuring that pesticide registrations comply with the Endangered Species Act and achieve

broader Agency objectives for water quality protection. The review processes will continue to place emphasis on the protection of potentially sensitive populations, such as children, by reducing exposures from pesticides used in and around homes, schools, and other public areas.

- EPA's new data requirement rule for antimicrobial pesticides will ensure that pesticide risk management decisions are based on the best available science and will contribute to a more efficient and transparent registration process through increased certainty about the data requirements. EPA's review processes ensure that pesticides can be used safely and are available for use to maintain a safe and affordable food supply, to address public health outbreaks, and to minimize property damage that can occur from insects and pests.[9]
- EPA has reviewed its agricultural worker protection regulation and its pesticide applicator certification regulation and will publish for public comment proposed changes to both. The proposed rulemakings are designed to ensure improved pesticide worker safety standards and pesticide applicator competency standards in the coming years.
- EPA is implementing a comprehensive testing program to screen for chemicals' potential to interact with the endocrine system.[10] In response to a recently concluded program evaluation, EPA has developed a comprehensive management plan for the endocrine disruptor screening program, providing a clear workplan, projected milestones, and vision for developing a more efficient and effective screening and testing program through the application of computational toxicology methods. Use of these methods may have the added benefit of helping to reduce the need for animal testing when conducting chemical screening and risk assessment.

To ensure the continued effectiveness of the various chemical programs, EPA will conduct several evaluations over the next 4 years. In FY 2014, EPA will initiate a review of critical factors that have an impact on the effectiveness of the Agency's risk assessment efforts for TSCA work plan chemicals. In FY 2015, the Agency will evaluate the effectiveness of recently implemented efficiencies to the registration review process to identify further enhancements and efficiencies to the process. EPA will also conduct biennial reviews in 2015 and 2017 to determine whether the level of fees charged to the submitters of New Chemical Pre-Manufacture Notices and to the applicants for certification to perform lead renovation, repair, and painting work and lead abatement work are appropriate.

External Factors and Emerging Issues

As we look to the future, it is important to continue working together with Congress and stakeholders to modernize and strengthen the tools available under TSCA to prevent harmful chemicals from entering the marketplace and to increase confidence that those chemicals that remain are safe and do not endanger the environment or human health, especially for consumers, workers, and sensitive subpopulations like children. Potential legislative action to reauthorize TSCA is both a key external factor and a key emerging issue. Consistent with the Administration's essential principles, EPA's authority under TSCA should be modernized and strengthened to increase confidence that chemicals used in commerce are safe and do not endanger public health and welfare. EPA is committed to working with the Congress, members of the public, the environmental community, and industry to reauthorize TSCA.

On April 30, 2013, the National Academy of Sciences' National Research Council (NRC) released its recommendations for assessing risks from pesticides to listed species under the Endangered Species Act and FIFRA. The Environmental Protection Agency, U.S. Department of Agriculture, U.S. Fish and Wildlife Service, and National Marine Fisheries Service are working collaboratively and expeditiously to review the report and identify improvements in the current scientific procedures used in evaluating the potential impacts of pesticides to endangered and threatened species. On November 13, 2013, the federal agencies released a white paper detailing an interim approach for implementing the panel's recommendations.[11] We currently anticipate that implementation of the recommendations could take 18–36 months, which

could have an impact on our progress in developing preliminary risk assessments and completing decisions for pesticides as part of the registration review program.

Finally, a number of chemical safety programs are affected by changing levels of economic activity. For example, EPA's work in certifying firms to perform lead renovation, repair, and painting work depends partly on fluctuations in the level of demand for such services, which are related in turn to economic conditions in the housing market.

Promote Pollution Prevention

The PPA established national policy for the use of P2 as the first choice in addressing pollution at the source. Time and experience have added to our understanding and appreciation of the value of preventing pollution before it occurs. P2 is central to all of EPA's sustainability strategies, and EPA will continue to incorporate P2 principles into its policies, regulations, and actions.[12]

EPA strives to prevent pollution by fostering the development of P2 solutions and promoting increased use of those solutions. The results of these strategies include significant reductions in the use of hazardous materials, energy, and water and in the generation of greenhouse gases, as well as significant increases in the availability and use of safer chemicals and safer chemical products. EPA's successful implementation of these strategies also enables businesses, governments, and other institutions to reduce their costs. These strategies are key elements of EPA's approach to achieving a sustainable future.

Specific activities conducted to implement these strategies include:

- Fostering the development of P2 innovations:
  - Promoting green chemistry and green engineering, and developing educational curricula;
  - Establishing technical criteria for chemical alternatives assessments;
  - Participating in the development of voluntary consensus standards and other safer chemical products criteria, including participating in international cooperative efforts;
  - Establishing greener purchasing and management practices (i.e., environmentally preferable purchasing); and
  - Incorporating P2 solutions in regulatory options or requirements.
- Promoting increased use of P2 innovations:
  - Providing and promoting technical assistance, such as establishing Economy, Energy, and Environment (E3) Partnerships (in conjunction with the Departments of Agriculture, Commerce, Energy, and Labor, and the Small Business Administration) or providing technical assistance on manufacturing, green sports, or other business sectors;
  - Demonstrating the benefits of P2 solutions;
  - Labeling safer products by working with key stakeholders through the Design for the Environment (DfE) program;
  - Leveraging the power of federal purchasing; and
  - Coordinating with other P2 offices across the Agency with shared audiences or sustainability approaches, including ENERGY STAR, WaterSense, the sustainable materials management program, and other complementary programs between Goal 3 and Goal 4.

External Factors and Emerging Issues

The Agency's multimedia P2 efforts are affected by changes in economic conditions. Much of EPA's P2

work is voluntary, so success depends in part on participation levels by industry, government agencies, and members of the public.

Applied Research

EPA chemicals research will provide the scientific foundation required to support safe, sustainable use of chemicals to promote human and environmental health, as well as to protect vulnerable species and populations. This work includes enhancing the Integrated Risk Information System (IRIS) program to ensure the highest quality human health assessments are produced in a timely fashion. Innovative research will provide the tools to:

- Assess safety of high-priority chemicals and advance our understanding of the cumulative risks that may result from multiple chemical and non-chemical stressors.
- Enhance chemical screening and testing approaches for priority setting and context-relevant chemical assessment and management.
- Inform Agency actions and help local decision makers manage and mitigate exposures to contaminants of greatest concern.
- Promote innovations in green chemistry and green engineering to help encourage use of safer chemicals in commerce.
- Evaluate human health and ecological risks associated with new chemical substitutes designed to promote safer alternatives.
- Provide the systems understanding needed to adequately protect the health of children and other vulnerable groups.

EPA homeland security research helps the Agency carry out its mission to prepare for and respond to man-made disasters (e.g., terrorism, industrial accidents) and natural disasters (e.g., hurricanes, floods), leading to more resilient communities. Specifically, EPA conducts research on:

- Improving the resiliency of the nation's water infrastructure to disasters.
- Cleanup of indoor and outdoor contamination following a disaster.
- Analytical methods for EPA's Environmental Response Laboratory Network that tests samples from disaster sites.

End Notes:

1. The following links are to selected government sources that provide useful information on environmental health risks to children:

   A Framework for Assessing Health Risk of Environmental Exposures to Children (2006), available at http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=158363.

   Child-Specific Exposure Factors Handbook (2008), available at http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=199243.

   Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants (2005), available at http://www.epa.gov/raf/publications/guidance-on-selecting-age-groups.htm.

   Guide to Considering Children's Health When Developing EPA Actions: Implementing Executive Order 13045 and EPA's Policy on Evaluating Health Risks to Children (2006), available at http://yosemite.epa.gov/ochp/ochpweb.nsf/content/ADPguide.htm/$File/EPA_ADP_Guide_508.pdf.

   Policy on Evaluating Risk to Children (1995), available at http://www.epa.gov/spc/2poleval.htm.

   Summary Report of the Technical Workshop on Issues Associated with Considering Developmental Changes in Behavior and Anatomy when Assessing Exposure to Children (2001), available at http://www.epa.gov/raf/publications/sum-report-tech-wrkshp-development-changes-behavior.htm.

   Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005), available at http://www.epa.gov/raf/publications/cancer_guidelines/sup-guidance-early-life-exp-carcinogens.htm.

2. Essential Principles for Reform of Chemicals Management Legislation. Available at http://www.epa.gov/oppt/existingchemicals/pubs/principles.html.

3. The text of the Pollution Prevention Act (PPA) can be found at http://www.epa.gov/p2/pubs/p2policy/act1990.htm.

4. EPA chemical safety program information is available at http://www.epa.gov/oppt/existingchemicals/, http://www.epa.gov/oppt/newchems/, and http://www.epa.gov/oppt/nano/.

5. FY 2014–2015 Agency Priority Goal: Assess and reduce risks posed by chemicals and promote the use of safer chemicals in commerce. By September 30, 2015, EPA will have completed more than 250 assessments of pesticides and other commercially available chemicals to evaluate risks they may pose to human health and the environment, including the potential for some of these chemicals to disrupt endocrine systems. These assessments are essential in determining whether products containing these chemicals can be used safely for commercial, agricultural, and/or industrial uses.

6. Information about childhood lead poisoning is available at www.epa.gov/lead.

7. EPA Lead-Safe Certification Program, information available at http://www.epa.gov/lead/pubs/toolkits.htm.

8. Nanomaterials are chemical substances or materials manufactured and used at a very small scale—down to 10,000 times smaller than a human hair. See also, www.nano.gov.

9. EPA pesticides program information is available at http://www.epa.gov/pesticides.

10. Information about the EPA endocrine disruptor screening program is available at http://www.epa.gov/scipoly/oscpendo/index.htm.

11. The white paper is available at http://www.epa.gov/espp/2013/interagency.pdf.

12. EPA pollution prevention program information is available at http://www.epa.gov/p2/.

Goal 5: Protecting Human Health and the Environment by Enforcing Laws and Assuring Compliance

Protect human health and the environment through vigorous and targeted civil and criminal enforcement. Use Next Generation Compliance strategies and tools to improve compliance with environmental laws.

Vigorous enforcement supports EPA's ambitious mission to protect human health and the environment. Achieving our goals for water that is safe to drink, lakes and streams that are fishable and swimmable, air that is clean to breathe, and communities and neighborhoods that are free from chemical contamination requires both new strategies and compliance with the rules we already have. To help achieve these goals, EPA authorizes state, tribal, and territorial agencies to directly implement environmental laws. Federal, state, and tribal agencies work cooperatively together as co-regulators to achieve compliance, with delegated or authorized states conducting the vast majority of enforcement activities across the country. By addressing noncompliance swiftly and effectively, state, tribal, and EPA civil and criminal enforcement cases directly reduce pollution and risk, and deter others from violating the law.

EPA will continue to focus federal enforcement resources on the most important environmental problems where noncompliance is a significant contributing factor, and where federal enforcement attention can have a significant impact. This strategy means EPA's top enforcement priority will be pursuing large, complex cases that require significant investment and a long-term commitment. We anticipate this strategy will result in a higher level of public health protection because of the significant impacts associated with the large cases, and the precedent they set for performance of large facilities across the country.

Objective

- **Enforce Environmental Laws to Achieve Compliance.** Pursue vigorous civil and criminal enforcement that targets the most serious water, air, and chemical hazards in communities to achieve compliance. Assure strong, consistent, and effective enforcement of federal environmental laws nationwide. Use Next Generation Compliance strategies and tools to improve compliance and reduce pollution.

Strategic measures associated with this Goal are on pages 73 through 75.

Our commitment to the largest most complex cases that have the biggest impact necessarily means that we will be doing fewer cases overall. This approach best protects public health not only by addressing the most serious pollution problems, but also by directing EPA's resources to important cases that may not be addressed by states because the environmental and human health risks or the patterns of noncompliance are broad in scope and scale such that EPA is best suited to take action. This strategy will also help maintain the enforcement program's effectiveness given limited resources. The 5-year targets for the enforcement program's strategic measures reflect the anticipated effects of this approach.

As an important supplement to a strong enforcement program, EPA is investing in "Next Generation Compliance" using advanced technologies and embracing new strategies for rule design and case targeting. Robust enforcement is critically important for addressing violations and promoting deterrence. But enforcement alone will not be enough to achieve compliance results that protect public health or to assure that businesses that comply with the law do not have to compete with companies that do not play by the rules. Next Generation Compliance takes advantage of new information and monitoring technologies as well as innovative strategies to make rules and permits more effective, enabling EPA, states, and tribes to get better compliance results and tackle today's compliance challenges. Next Generation Compliance will help EPA and the states move toward achieving more reliable compliance with standards designed to protect the public and the environment. It is the right direction for the Agency regardless of resources because it will increase effectiveness, and it becomes more urgent in a time of challenging budgets, when we need to reduce pollution, improve compliance, and target our enforcement cases where they will make the most difference.

Enforce Environmental Laws to Achieve Compliance

Effective targeting of compliance monitoring and vigorous civil and criminal enforcement play a central role in achieving the goals EPA has set for protection of health and the environment. Targets for most of the enforcement measures will remain steady over the life of this Strategic Plan. For some other measures, the strategic direction outlined in this Plan will affect the targets, as described in the "Strategic Measurement Framework" section of this Plan. What remains constant is EPA's focus on the cases that have the highest impact on protecting public health and the environment.

- **Addressing Climate Change and Improving Air Quality:** EPA will continue to take effective actions to reduce air pollution from the largest sources, including coal-fired power plants and the cement, acid, glass, and other sectors, to improve air quality. Enforcement to cut toxic air pollution in communities improves the health of communities, particularly communities that are disproportionately affected by pollution. EPA will work to assure compliance by the energy extraction sector, where violations can lead to air and water impacts that pose a potential risk to human health. EPA will also work to ensure compliance with climate change standards, including the greenhouse gas reporting rules.

- **Protecting America's Waters:** EPA has been working with states and cities to make progress on the most important water pollution problems. The Agency will continue to focus on getting raw sewage out of water and reducing pollution from stormwater runoff, using common sense and affordable approaches to tackle the most important problems first and incorporating green infrastructure for cost-effective reduction of pollution while enhancing communities. EPA is committed to working with communities to incorporate green infrastructure, such as green roofs, rain gardens, and permeable pavement, into permitting and enforcement actions to reduce stormwater pollution and sewer overflows where applicable. EPA, together with the states, continues to implement the Clean Water Act Action Plan[1] by ensuring the implementation of fundamental changes to the national pollutant discharge elimination system (NPDES) program, such as coordinated permitting, compliance, and enforcement programs to protect and improve water quality. The enforcement program continues to address pollution from animal waste, take enforcement action to reduce pollution in large aquatic ecosystems like the Chesapeake Bay, and assist in revitalizing urban communities by protecting urban waters.

  Enforcement also supports the goals of assuring safe drinking water for all communities, including in Indian country, and improving the quality of drinking water data reported by states to ensure compliance.2 Sustained and focused enforcement attention resulted in a 75 percent reduction in the number of public drinking water systems with serious unresolved violations between January 2010 and October 2013 through the combined efforts of federal and state agencies.

- **Cleaning Up Communities and Advancing Sustainable Development:** EPA protects communities by requiring responsible parties to conduct cleanups, saving federal dollars for sites where there are no other alternatives. Aggressively pursuing these parties to clean up sites ultimately reduces direct human exposures to hazardous pollutants and contaminants, provides for long-term human health protection, and makes contaminated properties available for reuse.
- **Ensuring the Safety of Chemicals and Preventing Pollution:** Reforming chemical management and reducing exposure to pesticides and other toxics will help protect human health. Enforcement reduces direct human exposures to toxic chemicals and pesticides and supports long-term human health protection.

Criminal enforcement underlines our commitment to pursuing the most serious pollution violations. EPA's criminal enforcement program will focus on cases across all media that involve serious harm or injury; hazardous or toxic releases; ongoing, repetitive, or multiple releases; serious documented exposure to pollutants; and violators with significant repeat or chronic noncompliance or prior criminal conviction. EPA's criminal enforcement program will continue to work collaboratively with its state and local law enforcement counterparts, as well as the U.S. Department of Justice. Many successful and important EPA criminal investigations result from enhanced coordination among all levels of government. An example is the prosecutions surrounding the Deepwater Horizon explosion, which led to the death of 11 people and was the largest marine oil spill in United States history. EPA's criminal enforcement program worked with multiple federal and state agencies and the U.S. Department of Justice, resulting in the single largest criminal resolution in the history of the United States as of 2013.

EPA shares accountability for environmental and human health protection with states and tribes. We work together to target the most important pollution violations and to ensure that companies that do the right thing and are responsible neighbors are not put at a competitive disadvantage. The Agency also has a responsibility to oversee EPA-authorized state and tribal implementation of federal laws to ensure that the same level of protection for the environment and the public applies across the country.

Enforcement can help to promote environmental justice by tackling noncompliance problems that disproportionately impact low-income, minority, and tribal communities. Ensuring compliance with environmental laws is particularly important in communities that are exposed to greater environmental health risks. EPA fosters community involvement by making information about compliance and government action available to the public. In addition to ensuring compliance and promoting environmental justice, EPA enforcement actions also result in companies investing in actions and equipment to control pollution, mitigating harm from past violations, and undertaking additional projects that benefit the environment and public health (known as supplemental environmental projects, or SEPs). EPA will continue to use all of these tools to protect communities.

In addition to vigorous enforcement of environmental laws, EPA is investing in Next Generation Compliance to take advantage of advances in pollution monitoring and information technology in order to reduce pollution and improve results. By building compliance drivers into regulations and permits, and using them across our compliance programs, these tools will enable EPA, states, and tribes to focus on the most serious environmental problems and to better protect communities.

Through the increased use of new information and monitoring technologies and other compliance strategies, Next Generation Compliance will allow us to identify pollution issues and will assist both government and industry to find and fix pollution and violation problems. Next Generation Compliance supports EPA's new E-Enterprise initiative by promoting electronic reporting, advanced monitoring, and transparency. Electronic reporting allows for more accurate and timely information on pollution sources, as well as public access to pollution and compliance information. A new collaborative state-EPA effort, the E-Enterprise Leadership Council, is working to establish a joint approach on information technology and program management infrastructure issues. Confirming the accuracy and completeness of existing and future data that are collected and protecting confidential business information remain priorities

for EPA, states, and tribes. In collaboration with states and in consultation with our tribal partners, E-reporting and advanced monitoring technologies will ultimately lead to better, more timely data for decision making and public transparency.

Next Generation Compliance also includes tools to help EPA design regulations and permits that will result in higher compliance and improved environmental outcomes. Regulations and permits are more likely to be implemented and compliance is likely to be higher when rules and permits are clear and easily understood, are provided in a user-friendly format, and contain built-in approaches that drive better compliance, such as improved monitoring, self- and third-party certifications, public disclosure/transparency, and easily monitored product designs or physical structures in facilities. EPA is also building on recent, measurable successes in innovative compliance efforts, such as the drinking water enforcement approach launched in 2010 that required public water systems with serious violations to return to compliance within 6 months or face an enforcement action by states or EPA. Use of this approach resulted in a decrease of approximately 75 percent in the number of public water systems classified as serious violators between January 2010 and October 2013. EPA is enhancing its ability to find and document violations through new targeting tools and data analysis to better identify, publicize, and respond to the most serious violations.

The Agency is also exploring innovative enforcement approaches such as providing electronic responses to electronically reported violations, and expanding the use of Next Generation Compliance tools in enforcement settlements. Through these and other Next Generation Compliance efforts, EPA will design the compliance programs of the future and work to maintain strong enforcement and improve compliance. EPA, states, tribes, and other partner agencies are beginning to invest in this transformation together–and anticipate realizing both efficiencies and cost savings while protecting human health and the environment. If implemented as proposed, the proposed NPDES Electronic Reporting Rule, as one example, will save money for states, tribes, and territories as well as EPA and NPDES permittees, while resulting in a more complete, accurate, and nationally consistent set of data about the NPDES program. The proposed rule would provide states with regulatory relief from reporting associated with the Quarterly Noncompliance Report (QNCR), the Annual Noncompliance Report (ANCR), the Semi-Annual Statistical Summary Report, and the biosolids information required to be submitted to EPA annually by states.

External Factors and Emerging Issues

Advanced monitoring technology and information technology are rapidly evolving fields. Until recently, for example, air pollution measurement was primarily left to trained scientists and technicians employing sophisticated instruments and methodologies to evaluate data quality. New breakthroughs in sensor technology, as well as advances in smart phone, GPS, and other information technology, have made inexpensive, portable monitoring and measurement of air pollution possible today, not only for government regulators, but for the public as well. In promulgating rules, developing policies, and targeting compliance monitoring and enforcement, EPA has always welcomed and considered relevant data from all sources. EPA will need to work closely with states, tribes, and the public to help interpret and provide context for data derived from such new technologies, and to ensure that EPA uses data of high quality.

End Notes

1. Information on the Clean Water Act Action Plan can be accessed at http://www2.epa.gov/enforcement/clean-water-act-cwa-action-plan.

2. An FY 2011 Government Accountability Office (GAO) report highlighted the seriousness of under-reporting Safe Drinking Water Act (SDWA) data. EPA followed up and will continue to take action to improve the quality of data reported by states.

Summary of Program Evaluation

The Administration is encouraging departments and agencies across the federal government to use a broad range of analytical and measurement tools ("an evidence infrastructure") to learn what works and what does not to improve performance results.[1] Among the most important analytical tools is program evaluation, producing rigorous evidence about program effectiveness as well as identifying lessons that may be helpful in shaping agency strategic planning in the future. EPA has used program evaluation and applied research to inform its approach to meeting the strategic objectives in the *FY 2014–2018 EPA Strategic Plan*.

Program evaluation results may affirm existing strategies or identify opportunities for improvement, or may lead to changes in policy, resource decisions, or program implementation. For example, EPA undertook an evaluation of how effectively the Agency is managing the human health and environmental risks of nanomaterials—substances smaller than one-tenth of a micrometer—because of their unique properties. Nanomaterials increasingly are being used in a wide range of scientific, environmental, industrial, and medical applications. The evaluation has led to a more concerted effort to promote research on nanomaterials and make more effective use of our regulatory authorities—the Federal Insecticide, Fungicide, and Rodenticide Act and the Toxics Substances Control Act—to address these chemicals. Results from an Agency evaluation of the Superfund green remediation strategy are being used to determine whether the program's 40 specific action items are adequately encouraging environmentally beneficial clean up and resource conservation at Superfund sites. An assessment of the ENERGY STAR product labeling program has given us a better understanding of which products are delivering the greatest program savings and which product categories still have untapped potential for greater gains. Other findings have helped the program revise or augment marketing and communication strategies to get the most impact from public recognition of the ENERGY STAR label and consumer buying patterns and habits.

We also look to the results of planned upcoming program evaluation projects to inform our program strategies in the future. Three of these planned evaluations include:

1. A midpoint assessment of the progress toward meeting and maintaining reduced nutrient and sediment pollution loads in the Chesapeake Bay as part of the 2025 goals of the Chesapeake Bay Program Partnership;

2. An examination of third-party inspection and cleanup programs in the underground storage tank program to identify key components of successful programs that can be shared with state partners and used as models for state adoption; and

3. Research under the National Air Toxics Assessment (NATA), which will continue the work done in 2005 to identify and prioritize air toxics, types of emission sources, and geographic locations that pose the greatest potential risk to the population and to serve as a basis for determining further steps toward reduction of emissions, as necessary.

EPA has included in the goal chapters some illustrative examples of how the results of program evaluations and applied research have informed Agency strategies in this *Strategic Plan*. Additional information about recently completed program evaluations and research that informed the *EPA Strategic Plan* and a preliminary list of future program evaluations is available at the *EPA Strategic Plan* website.[2]

End Notes

1. Fiscal Year 2014 Budget, Analytical Perspectives, Performance and Management Section, Chapter 7 "Delivering High Performance Government" and Chapter 8, "Program Evaluation and Data Analysis." This document can be found at http://www.whitehouse.gov/omb/budget/Analytical_Perspectives.

2. The *EPA Strategic Plan* website is http://www2.epa.gov/planandbudget/strategicplan.

Cross-Agency Strategies

Introduction

Since EPA's inception over 40 years ago, we have focused not only on our mission to achieve environmental and human health results, but also on how we work to accomplish those results. Achievement of each of these goals and objectives is shared across EPA. Through this *Plan*, EPA is placing an increased focus on *how* we work to achieve those results.

We have developed a set of cross-agency strategies that stem from the Agency's priorities and are designed to fundamentally change how we work, both internally and externally, to achieve the mission outcomes articulated under our five strategic goals and core values of science, transparency, and the rule of law. This *Plan* describes the vision and operating principles for each of the cross-agency strategies:

- Working toward a sustainable future;
- Working to make a visible difference in communities;
- Launching a new era of state, tribal, local, and international partnerships; and
- Embracing EPA as a high-performing organization.

For each of these strategies, the Agency will develop annual action plans with commitments that align with existing planning, budget, and accountability processes, and that support EPA's research and development agenda as appropriate. In implementing these strategies through annual action plans, we are committing to a focused effort to undertake tangible, measurable actions to transform the way we deliver environmental and human health protection.

Working Toward a Sustainable Future

Advance sustainable environmental outcomes and optimize economic and social outcomes through Agency decisions and actions, which include expanding the conversation on environmentalism and engaging a broad range of stakeholders.

EPA will consider and apply sustainability principles to its work on a regular basis, collaborating closely with stakeholders. Our traditional approaches to risk reduction and pollution control cannot always fully achieve our long-term and broad environmental quality goals. The interplay between different environmental statutes and programs also requires renewed attention to improve "synergy" and long-term solutions. To this end, EPA will also embrace a commitment to focused innovation to support solutions that will advance sustainable outcomes. This cross-agency strategy advances the national goal of achieving "conditions under which humans and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations," as established in the National Environmental Policy Act of 1969 (NEPA). This goal expresses a foundational concept in the President's Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance.

To integrate sustainability into the Agency's day-to-day operations, all headquarters and regional offices will routinely consider the following principles in their decisions and actions, as appropriate:

1. Conserve, protect, restore, and improve the supply and quality of natural resources and environmental media (energy, water, materials, ecosystems, land, and air) over the long term;
2. Align and integrate programs, tools, incentives, and indicators to achieve as many positive outcomes as possible in environmental, economic, and social systems; and
3. Consider the full life cycles of multiple natural resources, processes, and pollutants in order to prevent pollution, reduce waste, and create a sustainable future.

We will work within and across programs, use all available tools, and implement innovative approaches. We will build on our wide range of existing sustainability-related activities, including community-based sustainability activities. We will use incentive-based efforts to complement our foundation of regulations. We will encourage technology-based innovation through challenges and partnerships. We will review new and key existing regulations to examine sustainable enhancements. We will integrate efforts with a new commitment to innovation and greater and more strategic ("high level") use of sustainability-related data and information. This strategy specifically focuses on several actions to enhance EPA's sustainability work:

- **Identify selected cross-program priority areas that maximize EPA's ability to advance sustainability objectives and take appropriate actions to:**
  - Incorporate sustainability principles into regulatory, enforcement, incentive-based, and partnership programs;

- Use available incentives, education, information, and disclosure to enhance the ability of markets to reward sustainability;
- Coordinate grants, contracts, and technical assistance to promote sustainable outcomes;
- Advance sustainability science, indicators, and tools;
- Promote new ways to encourage technology-focused innovation that supports Agency priorities for sustainability. Use EPA's Technology Innovation Roadmap to guide EPA in stimulating and supporting technology innovation around key environmental challenges; and
- Use systems-based approaches that account for linkages between different environmental systems.

✦ **Engage and empower EPA staff.** Build on staff knowledge of and experience with sustainability and innovation through multiple forms of in-reach, education, and guidance for incorporating sustainability principles into Agency work in a multi-disciplinary way. Develop clear Agency leadership expectations for training at all levels to help equip employees with necessary data and tools to identify appropriate opportunities, network internally and externally, establish governance and accountability structures, provide everyday encouragement and recognition, and lead by example in our own operations. These efforts will improve the ability of all staff to be effective environmental stewards and to help secure a healthy, just, and flourishing quality of life for current and future generations.

✦ **Expand the conversation on environmentalism by engaging and empowering stakeholders, including groups with which EPA has not traditionally worked, using multiple forms of outreach, collaboration, and information.** Beginning with the cross-program priority areas identified, we will communicate and partner with key stakeholders, including federal, state, and local agencies, tribes, the agricultural and manufacturing sectors, small businesses, industry, non-governmental organizations, the research community, international organizations, communities with environmental justice concerns, citizens, and other partners, both urban and rural, including those who have been underrepresented, to achieve more innovative and sustainable outcomes. In keeping with our objective to strengthen partnerships, EPA will emphasize transparency and clarity in its communications, including environmental education outreach. Through collaboration and research, we will improve our ability to drive innovation and expand the conversation on environmentalism to address related social and economic issues, especially in communities with vulnerable populations or environmental justice concerns.

Working to Make a Visible Difference in Communities

Align community-based activities to provide seamless assistance to communities, both urban and rural, while maximizing efficiency and results. Expand support of community efforts to build healthy, sustainable, green neighborhoods and reduce and prevent harmful exposures and health risks to children and underserved, overburdened communities.

EPA must work collaboratively across all programs and hand in hand with other federal agencies, states, tribes, and local communities to improve the health of all families and protect the environment. EPA must expand the work we do to enhance the resiliency, health, and economic vitality of communities and neighborhoods through increased analysis, better science, and enhanced community engagement while continuing to advance environmental justice (EJ) and ensure the protection of basic fundamental rights.

Public health and environmental protection impacts affect us most significantly where we live—at the community level. Both urban and rural communities reap the benefits of a healthier environment in the form of safe drinking water, less polluted air, greater access to green space, and more environmentally sustainable choices for daily living. EPA's national regulatory efforts, such as eliminating lead from gasoline, have historically contributed to these outcomes. But equally important are EPA's many community-based efforts which, among other things, work for environmental justice, protect children's health, and reduce exposures and consider cumulative risks for vulnerable populations. These efforts and commitments will be carried out in partnership with Agency sustainability goals and will lead to better results for all communities.

While EPA efforts have a direct, positive impact on the health and environmental quality of communities, EPA will place additional focus on changing the way we work so that communities can easily identify and achieve their full potential. EPA believes environmental progress can be better supported, demonstrated, and measured in communities, especially those with environmental justice concerns, so that all equally receive the benefits of human health and environmental protection standards. Millions of minority, low-income, tribal, and indigenous individuals are at risk of having poor health outcomes because they live in underserved, overburdened communities. EPA can make a greater and more visible difference by embracing strategies that incorporate an Agency-wide focus on communities. An Agency-wide community perspective helps to leverage diverse resources effectively and supports efforts for identifying sustainable solutions. Specifically, EPA will rely on a variety of approaches, including improved meaningful outreach to communities, better internal alignment and coordination of resources across community-based programs, increased incorporation of EPA community-focused approaches and analyses within regulatory and enforcement actions, and expanded technical assistance and research to improve public health and the environmental performance of communities. Partnering with federal, state, and local governments, as well as other entities, is key to cultivating healthy and sustainable neighborhood

solutions that reflect effective land use, green development, and social and economic growth.

To achieve this goal, EPA will proactively work to:

- **Improve internal coordination, alignment, and accountability for EPA community-based activities, programs, and tools in order to advance environmental results for communities.** Incorporate community-based strategies as a fundamental, organizing principle in EPA core programs and policies by consistently sharing experience and expertise, adopting promising tools, replicating relevant models (e.g., Promising Practices to Improve Community Performance and Sustainability, Plan EJ 2014, Urban Waters Initiative), and improving measurement and tracking of community-based efforts. These models engage multiple partners in the community (local and federal government partners, nonprofit groups, local businesses, and residents) to identify issues and solutions across environmental media, and deliver funding and technical assistance to address the environmental risks, train the community, and share best practices. We will leverage EPA resources, increase awareness and understanding of community needs and risks and related solutions, invest in innovative research and science-based approaches, develop and use appropriate indicators, coordinate data, and track accomplishments. An ongoing priority area will be to continue to advance the work on environmental justice and children's environmental health in rulemaking, permitting, enforcement and compliance, grants, and policy-making decisions (e.g., use potential supplemental environmental projects to address community needs and increase technical assistance efficiencies).
- **Increase public access to EPA community-based resources, helping communities recognize their full engagement potential and problem-solving capacity.** Empower community dialogue, engagement, understanding, and action through effective information sharing, including outreach and environmental education that informs the public about policy choices and environmental stewardship to benefit current and future generations. The sharing of critical, up-to-date information (such as skills and services, best practices and success stories, useful contacts, relevant grants and technical assistance, data, and multimedia strategies) supports effective community involvement. Improved information sharing builds public capacity to engage in citizen science (e.g., contribute to environmental research, complement EPA science in support of state or local problem solving, and enhance environmental protection), and encourages environmental education and environmental justice activities. The Agency will also create mechanisms at the regional and program levels to better communicate the community-based benefits of EPA's work in terms of improved public health and the environment at the local level.
- **Build on existing partnerships to create lasting, inclusive, collaborative community networks that include government and other public and private entities.** Work with federal agencies through existing partnerships (e.g., the Department of Housing and Urban Development–Department of Transportation–EPA Partnership for Sustainable Communities and the Environmental Justice Interagency Workgroup), as well as with states, tribes, communities, and other stakeholders to leverage resources, funding opportunities, and technical expertise and assistance to support healthy, sustainable, and green neighborhood solutions. Partner with research organizations and academic institutions to focus and advance basic research and create models and measures to expand the conversation on environmental and human health concerns to address priority-focused, locally based problems, specifically including environmental justice and children's environmental health issues.

Launching a New Era of State, Tribal, Local, and International Partnerships

Strengthen partnerships with states, tribes, local governments, and the global community that are central to the success of the national environmental protection program through consultation, collaboration, and shared accountability. Modernize the EPA–state relationship, including revitalizing the National Environmental Performance Partnership System and jointly pursuing E-Enterprise, a transformative approach to make environmental information and data more accessible, efficient, and evidence-based through advances in monitoring, reporting, and information technology.

The practice of good government, as well as the reality of limited resources, means that EPA works in concert with our partners to improve coordination, promote innovation, and maximize efficiencies to ensure our continued success. As we work together, our relationships must continue to be based on integrity, trust, and shared accountability to make the most effective use of our respective bodies of knowledge, our existing authorities, our resources, and our talents.

Successful partnerships will be based on four working principles: consultation, collaboration, cooperation, and accountability. By *consulting*, we will engage our partners in a timely fashion as we consider approaches to our environmental work so that each partner can make an early and meaningful contribution toward the final result. By *collaborating*, we will not only share information, but we will actively work together with our partners to develop innovative approaches that use and leverage all available resources to achieve our environmental and human health goals. As our work progresses, we will *cooperate*, viewing each other with respect as allies who must work successfully together if our goals are to be achieved. Through shared *accountability*, we will ensure that environmental benefits are consistently delivered nationwide. In carrying out these responsibilities, EPA will ensure that state, tribal, and federal implementation of federal laws achieves a consistent level of protection for the environment and human health.

With States

Under our federal environmental laws, EPA and the states share responsibility for protecting human health and the environment. With this relationship as a key component of the nation's environmental protection system, EPA will:

- Improve implementation of national environmental programs through closer consultation and collaboration to seek the most efficient use of resources, streamline business processes and administrative requirements, develop and promote innovative solutions, and further our shared governance framework by revitalizing the National Environmental Performance Partnership System (NEPPS).[1] We will strengthen joint EPA–state priority setting by better aligning NEPPS with EPA's national program manager guidances,[2] focusing on flexible, innovative approaches to achieve results, and seek ways to leverage all available mutually beneficial opportunities to share work and expertise.

- Work collaboratively with state partners to develop innovative strategies and modernize our environmental programs through the E-Enterprise initiative,[3] a 21st century approach that will support the nation's environmental protection responsibilities through enhanced information sharing, increased transparency, and reduced regulatory burden, supported by advanced monitoring tools and information technologies.

- Consult with state governments early in the rule-making process to ensure that the development and implementation of rules is consistent with "EPA's Action Development Process: Guidance on Executive Order 13132 (Federalism)," which recognizes the division of governmental responsibilities between the federal government and the states.

- Strengthen state–EPA shared accountability by focusing oversight on the most significant and pressing state program performance challenges, using data and analysis to accelerate program improvements.

- Ensure a level playing field across states to improve compliance and address the most serious violations.

- Collaborate with state research organizations to share information on EPA's scientific and technical capabilities and solicit input to make our tools, models, and research useful and practical for the states in carrying out their environmental responsibilities.

With Tribes

The relationship between the United States government and federally recognized tribes is unique—we work with tribes on a government-to-government basis on Agency decisions that may affect tribal interests. Our responsibility to consult with tribal governments is distinct from the general consultations we have with states and nations outside the U.S. border. As such, our consultations with tribes are governed by the EPA Policy for the Administration of Environmental Programs on Indian Reservations (November 8, 1984), Executive Order 13175 on Consultation and Coordination with Indian Tribal Governments, and the Agency's Policy on Consultation and Coordination with Indian Tribes (May 4, 2011). In strengthening this relationship with tribes, EPA will:

- Focus on increasing tribal capacity to establish and implement environmental programs while ensuring that our national programs are as effective in Indian country as they are throughout the rest of the nation.[4]

- Enhance our effort to work with tribes on a government-to-government basis, based upon the Constitution, treaties, laws, executive orders, and a long history of Supreme Court rulings.

- Strengthen our cross-cultural sensitivity with tribes, recognizing that tribes have cultural, jurisdictional, and legal features that must be considered when coordinating and implementing environmental programs in Indian country.

With Local Partners

EPA has a unique relationship with local governments given that local governments can be both co-implementers and regulated entities under national and state environmental laws. Recognizing that local governments vary considerably,[5] are dealing with significant resource constraints as they work to build capacity (particularly in smaller communities), and often provide innovative leadership in environmental stewardship, EPA will:

- Maintain consistent and meaningful communications with local officials and optimize outreach efforts to improve environmental program implementation at the local level and receive recommendations on environmental issues that are important to local governments.

- Consult with local governments, as with states, early in the development of rules and policies that impact them, consistent with "EPA's Action Development Process: Guidance on Executive Order 13132 (Federalism)."

- Promote and facilitate best practices among local officials to address pressing local environmental matters with flexible, innovative approaches that advance shared priorities.

With International Partners

To achieve our domestic environmental and human health goals, international partnerships, including those with the business community and entrepreneurs, are essential. Pollution is often carried by winds and water across national boundaries, posing risks to human health and ecosystems many hundreds and thousands of miles away. Many concerns, like climate change, are global and, to address these and other environmental challenges in the international arena, EPA will:

- Enhance sustainability principles through expanded partnership efforts in multilateral forums and in key bilateral relationships.
- Strengthen existing and build new international partnerships to encourage increased international commitment to sustainability goals and to promote a new era of global environmental stewardship based on common interests, shared values, and mutual respect.

End Notes

1. NEPPS is an environmental performance system established in 1995 and designed to improve the efficiency and effectiveness of state environmental programs and EPA–state partnerships. It is a system of principles and tools to drive performance, efficiency, and flexibility in the EPA–state relationship. It enables EPA and states to leverage their collective resources most efficiently and effectively by taking full advantage of the unique capacities and capabilities of each partner to achieve the maximum environmental and human health protection. The primary tools for establishing priorities and deploying resources are Performance Partnership Agreements (PPAs) and Performance Partnership Grants (PPGs). PPGs allow states and tribes to combine categorical grants for greater spending flexibility on state and tribal priorities. PPAs are strategic negotiated plans that articulate joint goals and priorities, key activities, and roles and responsibilities.

2. EPA's national program manager (NPM) guidances translate the Agency's budget decisions into operational program priorities, strategies, and performance measures. Issued by the five major environmental programs (air, water, waste, chemical safety and pollution prevention, and enforcement and compliance assurance), the NPM guidances inform the development of EPA work plans and grant agreements with states and tribes, including Performance Partnership Agreements, Performance Partnership Grants, and/or programmatic grants.

3. EPA has developed an FY 2014–2015 Agency Priority Goal for E-Enterprise: Improve environmental outcomes and enhance service to the regulated community and the public. By September 30, 2015, reduce reporting burdens to EPA by one million hours through streamlined regulations, provide real-time environmental data to at least two communities, and establish a new portal to service the regulated community and public. More information on Agency Priority Goals is available at http://goals.performance.gov/agency/epa.

4. EPA recently issued new guidance for the Indian Environmental General Assistance Program, "Guidance on the Award and Management of General Assistance Agreements for Tribes and Intertribal Consortia," May 15, 2013. The General Assistance Program (GAP) Guidance is designed to enhance the EPA–tribal partnership by establishing a framework for joint strategic planning, identification of mutual responsibilities, and targeting resources to build tribal environmental program capacities. Additionally, it augments existing GAP Guidance with a guidebook of program development indicators, providing "pathways" for capacity building and ways to measure development of programs over time.

5. Local governments may include counties, cities, water districts, air districts, ports, municipal waste management associations, economic development councils, metropolitan councils of government, and other entities.

Embracing EPA as a High-Performing Organization

Maintain and attract EPA's diverse and engaged workforce of the future with a more collaborative work environment. Modernize our business practices, including through E-Enterprise, and take advantage of new tools and technologies. Improve the way we work as a high-performing Agency by ensuring we add value in every transaction with our workforce, our co-regulators, our partners, industry, and the people we serve.

As today's environmental problems continue to increase in complexity, EPA's ability to respond creatively, flexibly, and effectively will demand cross-Agency approaches to problem-solving and the use of new tools and technologies. EPA will support these efforts by establishing a high-performing organization characterized by business practices that are modern, efficient, and cost effective, as well as a work environment that supports staff growth and development, and is collaborative and results driven. Becoming a high-performing organization will require changes to both our internal and external processes, and EPA will actively solicit advice and engagement from both within EPA and with our partners as we advance new tools and streamline approaches.

EPA's compelling mission to protect human health and the environment attracts workers eager to make a difference. EPA cultivates a highly skilled and diverse workforce, with employees energized by opportunities to learn and work collaboratively, and equipped to do their best work for the American people. In building a high-performing organization, the Agency is working to provide employees with a modern, inclusive, and flexible work environment, enabled by advanced information technologies and tools that enhance communication, transparency, and cooperative problem solving across the Agency and with our partners.

EPA is now moving forward with two major initiatives that are part of our efforts to create the next generation of environmental protection in our nation.

- E-Enterprise is a U.S. EPA–state initiative to improve environmental performance and enhance services to the regulated community, environmental agencies, and the public. As described in the E-Enterprise for the Environment Conceptual Blueprint, "E-Enterprise will increase transparency and efficiency, develop new environmental management approaches, and employ advanced information and monitoring technologies in a coordinated effort to manage and modernize environmental programs."[1] For example, this initiative will move us from using paper to electronic transactions, increase the use of advanced monitoring technologies to obtain better, more complete information on environmental conditions and pollution sources, and deliver data that is transparent, readily available, and understandable to EPA, the states, and the general public. Through E-Enterprise, the entire environmental protection enterprise (federal, state, local, and tribal partners) will be able to regularly conduct two-way business electronically in an integrated way, reducing costs while enhancing environmental protection.
- EPA is moving forward to adopt Next Generation Compliance principles and tools to increase compliance and reduce pollution. Next Generation

Compliance uses advances in research, pollutant monitoring, and information technology; expanded transparency; electronic reporting; and innovative enforcement to reduce pollution and improve results. These tools, combined with a focus on designing rules and permits that are easier to implement, enable EPA, states, and tribes to focus on the most serious environmental problems and to better protect communities.

The Agency will focus on streamlining internal business processes and decision making at all levels. To stay current, programs must be constantly reevaluated to ensure they are well focused and cutting edge. Promulgated regulations should maximize environmental benefit while minimizing costs. EPA is committed to process improvement through the application of Lean methodologies and other business practice improvement techniques, as well as the engagement of the expertise and insights of Agency employees to identify opportunities to increase efficiency and effectiveness.[2]

By combining the strengths of a supportive work environment with a streamlined and collaborative business culture, EPA will establish itself as a high-performing organization known for advancing the talents, drive, and interests of employees, as well as the collaborative work in support of our common mission and the public we serve. EPA will:

- Maintain and attract the workforce of the future to ensure that EPA's employees represent diverse backgrounds and perspectives, are equipped with the most current technical skills, tools, and knowledge, and are positioned to effectively accomplish the Agency's mission and meet evolving environmental and sustainability challenges.
- Cultivate a work environment that offers a high-quality work life for all employees by engaging them in shaping Agency decisions and improving processes, and providing flexible work practices, fair and inclusive employee-friendly policies, and opportunities for continuous learning. EPA will modernize the workplace and develop and promote collaboration tools to improve communication, cross-program integration, access to information, and transparency.
- Advance the E-Enterprise initiative to improve environmental outcomes, enhance service to the regulated community and public, and reduce burden and improve collaborative management among EPA, states, tribes, and others. E-Enterprise will increase collaboration with the states as we modernize regulations to make e-reporting the "new normal" and use advanced monitoring to provide more complete and useful environmental data. Key parts of E-Enterprise will be shared information technology services and tools that states and EPA programs use and, in collaboration with the states, the development of a regulatory portal that will help regulated entities electronically report to the states and EPA. The development of E-Enterprise is one of EPA's Priority Goals.[3]
- In addition to compliance monitoring and enforcement actions, implement Next Generation Compliance by promoting the use of advanced monitoring and electronic reporting, designing rules that are easier to implement, expanding transparency, and using innovative enforcement approaches to increase compliance and reduce pollution.
- Streamline the Agency's internal business practices, core program processes, and decision making in areas such as acquisition and grants management, rulemaking, and permitting to ensure they are cutting edge, enhance collaboration, and improve efficiency and cost effectiveness while maximizing environmental benefits.
- Practice outstanding financial resource stewardship to ensure that all Agency programs use resources efficiently, operate with fiscal responsibility and management integrity, are effectively and consistently delivered nationwide, and demonstrate results.
- Achieve or exceed federal sustainability targets. These efforts, enhanced by sustainable workplace choices that can be routinely practiced by Agency employees, will continue to reduce EPA's environmental footprint by increasing energy efficiency, reducing greenhouse gas emissions, advancing water conservation, and reducing waste, and will provide lessons learned to share with other federal agencies.

End Notes

1. E-Enterprise for the Environment Conceptual Blueprint, Executive Summary, page i, as ratified by the state–EPA E-Enterprise Leadership Council on January 21, 2014. For more information, see http://www.ecos.org/section/committees/information_management.

2. For more information on Lean process improvement approaches, see http://www.epa.gov/lean/government/index.htm.

3. See the FY 2014–2015 Agency Priority Goal for E-Enterprise under the cross-agency strategy entitled "Launching a New Era of State, Tribal, Local, and International Partnerships." More information on Agency Priority Goals is at http://goals.performance.gov/agency/epa.

Strategic Measurement Framework

Introduction

The *Strategic Plan* provides the foundation for EPA's performance management system—planning, budgeting, performance measurement, and accountability. The *Plan* contains EPA's strategic measurement framework of long-term goals, objectives, and strategic measures, which describe the measurable human health and environmental results the Agency is working to achieve over the next 4 years.

To achieve the long-term goals, objectives, and strategic measures set out in this *Plan*, EPA designs annual performance measures which are presented in EPA's *Annual Performance Plans and Budgets*. The Agency reports on our performance against these annual measures in Annual Performance Reports, and uses this performance information to help establish priorities and develop future budget submissions. The Agency also uses this performance data to evaluate our progress and develop future *Strategic Plans*.

EPA's strategic planning and decision making benefits from other sources of information including program evaluations and environmental indicators. A number of the strategic measures in this *Strategic Plan* are closely related to indicators in EPA's *Report on the Environment* (ROE). The ROE identifies a set of peer-reviewed human health and environmental indicators that tracks trends in environmental conditions and environmental influences on human health. This information also helps us better articulate and improve the strategic measurement framework in EPA's *Strategic Plan*. EPA's updated ROE will provide web-based access to explore, display, and analyze the underlying data for more than 80 indicators for air, water, land, human exposure and health, and ecological conditions along with several new sustainability indicators.

The Agency continues to look for new data and information sources to better characterize the environmental conditions targeted by our programs to improve our understanding of the integrated and complex relationships involved in protecting human health and the environment.

Planned Changes in the Strategic Measurement Framework

Using the *FY 2011–2015 EPA Strategic Plan* as a foundation, we have continued our focus on creating the smallest, most meaningful set of strategic measures that the Agency leadership can use as a management tool. We have also updated the strategic measures to reflect targets and baselines appropriate for the FY 2014–2018 time horizon.

We will continue over the next several years to make further revisions in key areas. Our anticipated future efforts are described below.

Tribal Capacity Building

The Agency will begin to revise how it measures and reports on the progress tribes have made in developing and implementing environmental protection programs in Indian country. This effort will build

on the new Indian General Assistance Program (GAP) guidance[1] designed to improve tribal capacity development milestones beyond the current indicator, which shows the percent of tribes implementing federal regulatory programs.

For example, although some tribes may not seek primacy, authorization, approval, or delegation of federal programs, they nonetheless remain important partners in ensuring environmental protection. In other cases, a tribal government works with EPA to assist with the implementation of federal environmental programs in Indian country. The Agency will establish effective measures that capture the capacity development progress of tribes seeking to establish and implement programs in these two areas while also continuing to measure and report on tribes that EPA treats in a manner similar to a state.[2]

New measures to reflect the progress EPA is making in building tribal capacity will be derived from a multi-year effort. As a first step, the Agency recently completed the development of a suite of environmental protection program capacity-building indicators and published them in the new GAP guidance. Tribes will use these indicators as they develop specific program capacities under the GAP. These indicators reflect examples of the range of program capacities that tribes develop, up to the program implementation phase. EPA will collect baseline data in FY 2014 to help inform the development of appropriate measures and targets in FY 2015 for reporting in FY 2016–2018.

Water Quality

Most impaired waters take years to recover fully, and incremental improvements are currently not well represented. In 2002, states identified approximately 39,500 specific waterbodies as impaired (i.e., not attaining state water quality standards) on the Clean Water Act Section 303(d) impaired waters lists. The EPA measures that track progress towards restoring impaired waters have continued to use the 2002 baseline. While states have taken significant steps to improve impaired waters using the fixed 2002 baseline year, EPA recognizes that there are concerns with continuing to measure progress against the 2002 baseline (e.g., it does not account for water quality improvements when measured against waters identified as impaired and listed after establishment of the 2002 baseline).

EPA is committed to working with state partners on this new approach for measuring local improvements in water quality and in the development of new measures. In the short term, EPA will allow states to report separately additional accomplishments not on the 2002 baseline. EPA commits to replacing the existing measures for attaining water quality standards and for improving water quality conditions in impaired waterbodies in the next *Strategic Plan*. EPA is considering a new approach to track water quality progress using the National Hydrography Dataset Plus (NHDPlus) to calculate watershed area for priority areas using the NHDPlus "catchments" to describe previously impaired waters that are now attaining their water quality standards. This approach also allows for the inclusion of watershed areas targeted for protection (i.e., high-quality waters). It provides a consistent method for measuring progress at the local scale, while allowing for tighter integration with data and assessments at the state and national scale. Through this effort, EPA is also working with its partners to develop new replacement strategic measures for water quality standards attainment and for improved water quality conditions in impaired waterbodies. To complete the picture on water quality, EPA will continue to encourage the use of state-wide indicators for water quality for areas beyond the focus of state priority areas. State survey results contribute information to help set future priorities and to communicate with the public on state-wide water quality status and trends as a supplement to reporting on waters within priority areas.

Enforcement and Compliance Assurance

The *FY 2014–2018 Strategic Plan* provides an opportunity to reassess the usefulness of our current performance measures and to consider new ones. Historically, the enforcement program's measures in the *Strategic Plan* have focused on counting our level of activity (e.g., numbers of inspections) and also case-specific results for enforcement cases (e.g., pounds of pollutants reduced) to communicate the environmental benefits of our enforcement actions. These measures provide information about how the Agency is actively and consistently performing the activities necessary to find polluters, take

appropriate action, and monitor defendants' compliance with settled enforcement cases, targeting these activities toward the most serious human health and environmental problems across a variety of regulatory programs.

These metrics are useful, and we will continue reporting on them, but they tell only part of the story. An effective program should target the biggest problems first. Under this approach, the environmental outcomes for many conventional performance measures should continually decrease over time. For example, as EPA addresses the worst pollution first in identified sectors, the pounds of pollution reduced in that sector as a result of enforcement actions should decrease over time. Our historic enforcement measures also treat all pollution the same, even though different pollutants pose different risks—reducing a pound of toxic pollution can provide similar health benefits to reducing a much larger amount of conventional pollutants. We recognize that preventing problems is both cheaper and more effective than taking action after they happen; however, our traditional metrics do not adequately account for work to prevent pollution. By focusing only on enforcement actions, the measures can have the inadvertent effect of discouraging innovative approaches that could improve compliance, and undervalue strong work by states to improve compliance.

These challenges in our performance measures have led us to think about new ways to measure the effectiveness of our work that will supplement the traditional measures. Fortunately, advances in both pollution monitoring and information technologies may help to provide answers. These advances are at the heart of Next Generation Compliance.

Next Generation Compliance is focused on the following five areas:

1. Designing regulations and permits that are easier to implement, with a goal of improved compliance and environmental outcomes.

2. Using and promoting advanced emissions and pollutant detection technology so that regulated entities, the government, and the public can more easily see quantified pollutant discharges, environmental conditions, and noncompliance.

3. Shifting toward electronic reporting by regulated entities so that we have more accurate, complete, and timely information on pollution sources, pollution, and compliance, saving time and money while improving effectiveness and public transparency.

4. Expanding transparency by making the information we have today more accessible, and making new information obtained from advanced emissions monitoring and electronic reporting more readily available to the public.

5. Developing and using innovative enforcement approaches (e.g., data analytics and targeting) to achieve more widespread compliance.

Progress toward Next Generation Compliance should eventually make additional measures of effectiveness possible. For example, electronic reporting will allow us to more reliably measure compliance across the universe of a regulated sector—something that cannot be done for most sectors today. Such a measure would credit innovative work to avoid violations, include state, tribal, and federal work toward this shared objective, and allow us to promote prevention as well as pollution reductions. By using advanced monitoring technologies to more reliably measure actual pollution (rather than relying on estimates), we will be able to compare actual pollution amounts to amounts that are permitted, allowing us to know what kinds of violations matter the most. Next Generation Compliance approaches will also support our ability and that of the states and tribes to adopt more evidence-based approaches as measurement of effectiveness becomes easier, faster, and cheaper.

While the new Next Generation Compliance strategies should allow us to add more informative measures in the future, we are not there yet. We are working with states and tribes to increase electronic reporting, but it will take years to fully implement this transition. Electronic reporting is not a panacea; it promises greater speed and transparency, but it also highlights the need to have a way to check on the accuracy of reports we receive. Advanced monitoring is being used increasingly in government and by industry, but is far from widespread. Rather than wait, and continue to rely exclusively on measures that tell an incomplete and sometimes misleading story,

Table 1: Strategic Enforcement and Compliance Measures

Enforcement Presence Measures	Compliance, Deterrence, and Outcome Measures	Next Generation Compliance Measures—Under Discussion
Existing Measures Through 2018	***Existing Measures Through 2018***	***Would Supplement Existing Measures*** *EPA is continuing discussions with states, tribes, and other interested parties about ways to incorporate Next Generation Compliance approaches into our measures. Below are a few examples of the types of measures under discussion.*
• Inspections and evaluations • Initiated and concluded civil judicial and administrative enforcement cases • Compliance status of open, non-Superfund consent decrees • Address cost recovery statute of limitations cases with total past costs above $500,000 • Reaching settlement with potentially responsible parties (PRPs) • Criminal cases with charges filed • Criminal cases with defendants convicted	• Air, water, hazardous waste, toxic, and pesticide pollutants reduced as a result of enforcement actions • Contaminated media reduced through enforcement actions • Criminal cases with most significant impacts • Criminal cases with individual defendants	• Number of enforcement settlements that resulted from or that incorporate advanced monitoring technologies • Regulated sources using advanced monitoring to measure their own emissions • Percent of facilities electronically reporting Clean Water Act NPDES data to authorized states and tribes and EPA • Public use of compliance transparency tools (ECHO, pollutant loading tool, etc.) • Sectors for which measureable compliance rate strategies adopted

we plan to experiment with interim measures as a supplement to the more traditional metrics. These interim measures do not reflect where we want to end up, but they help to shine a light on the path ahead, and draw attention to our investment in these new approaches. We expect that these ideas will lead in the future to both better results and stronger metrics to measure our success and the success of our state and tribal partners. EPA is cognizant of the need to avoid additional burden for states and tribes as a result of developing new measures. Through this *Strategic Plan* we are hoping to begin a dialogue with states, tribes, and the public on these new directions.

Table 1 sets out a few examples of potential new measures that illustrate the kind of metrics that may be discussed as part of the national dialogue we expect to have on this issue. The measures in italics are not currently part of our suite of measures. We are keenly aware of the need to avoid increasing reporting burden, so after the dialogue with states and tribes concludes, we expect to select only a limited number of new interim measures. Of course, for any new interim measures, we will need to define what they mean and how they will be counted. We are also reassessing the usefulness of current measures (i.e., measures in the first two columns of Table 1).

EPA's FY 2014–2015 Priority Goals (Agency Priority Goals)

As part of this *Plan* revision, we are identifying new FY 2014–2015 Agency Priority Goals (APGs), our third round of APGs. In addition to our long-term strategic measures, these Agency Priority Goals, which have 18- to 24-month operational targets, advance our strategic goals and serve as key indicators of our near-term work. EPA will report progress on the FY 2014–2015 APGs in the *Annual Plan and Budget* and results will be available quarterly via www.performance.gov.[3]

Table 2: EPA's FY 2014–2015 Agency Priority Goals

Reduce greenhouse gas emissions from cars and trucks Reduce greenhouse gas emissions from cars and trucks. Through September 30, 2015, EPA, in coordination with Department of Transportation's fuel economy standards program, will be implementing vehicle and truck greenhouse gas (GHG) standards that are projected to reduce greenhouse gas emissions by 6 billion metric tons and reduce oil consumption by about 12 billion barrels over the lifetime of the affected vehicles and trucks.
Clean up contaminated sites to enhance the livability and economic vitality of communities By September 30, 2015, an additional 18,970 sites will be made ready for anticipated use protecting Americans and the environment one community at a time.
Assess and reduce risks posed by chemicals and promote the use of safer chemicals in commerce By September 30, 2015, EPA will have completed more than 250 assessments of pesticides and other commercially available chemicals to evaluate risks they may pose to human health and the environment, including the potential for some of these chemicals to disrupt endocrine systems. These assessments are essential in determining whether products containing these chemicals can be used safely for commercial, agricultural, and/or industrial uses.
Improve environmental outcomes and enhance service to the regulated community and the public By September 30, 2015, reduce reporting burdens to EPA by one million hours through streamlined regulations, provide real-time environmental data to at least two communities, and establish a new portal to service the regulated community and public.
Improve, restore, and maintain water quality by enhancing nonpoint source program leveraging, accountability, and on-the-ground effectiveness to address the nation's largest sources of pollution By September 30, 2015, 100 percent of the states will have updated nonpoint source management programs that comport with the new Section 319 grant guidelines that will result in better targeting of resources through prioritization and increased coordination with USDA.
Improve public health protection for persons served by small drinking water systems, which account for more than 97 percent of public water systems in the U.S., by strengthening the technical, managerial, and financial capacity of those systems By September 30, 2015, EPA will engage with an additional ten states (for a total of 30 states) and three tribes to improve small drinking water system capability to provide safe drinking water, an invaluable resource.

End Notes

1. Final guidance on EPA's Indian Environmental General Assistance Program (GAP) with indicators was published May 15, 2013 and is available at www.epa.gov/tribal.

2. For more information on treatment in a manner similar to a state (TAS), please see http://www.epa.gov/tp/laws/tas.htm.

3. EPA is currently a major contributor to the Cross-Agency Priority (CAP) Goals on Infrastructure Permitting Modernization and Science, Technology, Engineering and Mathematics (STEM) Education. Per the GPRA Modernization Act requirement to address CAP Goals in the Agency Strategic Plan, the Annual Performance Plan, and the Annual Performance Report, please refer to www.performance.gov for the Agency's contributions to these goals and progress, where applicable.

Goal 1: Addressing Climate Change and Improving Air Quality. Reduce greenhouse gas emissions and develop adaptation strategies to address climate change and protect and improve air quality.

Objective 1.1: Address Climate Change. Minimize the threats posed by climate change by reducing greenhouse gas emissions and taking actions that help to protect human health and help communities and ecosystems become more sustainable and resilient to the effects of climate change.

Strategic Measures

Address Climate Change

- By 2018, implementation of the EPA and National Highway Traffic Safety Administration (NHTSA) national program to reduce greenhouse gas (GHG) emissions and improve fuel economy from light-duty and heavy-duty vehicles will achieve a cumulative reduction of 460 $MMTCO_2Eq.$ (Baseline 2011: 0 $MMTCO_2Eq.$)
- By 2018, additional programs from across EPA will promote practices to help Americans save energy and conserve resources, leading to expected greenhouse gas emissions reductions of 1,178.5 $MMTCO_2Eq.$ from a baseline without adoption of efficient practices.

Building Programs	215.50 $MMTCO_2Eq.$
Industrial Programs[1]	651.40 $MMTCO_2Eq.$
SmartWay Transportation Partnership	100.00 $MMTCO_2Eq.$
Pollution Prevention Programs	71.00 $MMTCO_2Eq.$
Sustainable Materials Management Programs[2]	117.40 $MMTCO_2Eq.$
WaterSense Program	23.00 $MMTCO_2Eq.$
Executive Order 13514[3] GHG Reduction Program	0.21 $MMTCO_2Eq.$

This reduction compares to 621.08 $MMTCO_2Eq.$ reduced in 2011. Baseline FY 2011:

Building Programs	189.00 $MMTCO_2Eq.$
Industrial Programs[1]	357.90 $MMTCO_2Eq.$
SmartWay Transportation Partnership	27.90 $MMTCO_2Eq.$
Pollution Prevention Programs	17.00 $MMTCO_2Eq.$
Sustainable Materials Management Programs[2]	22.10 $MMTCO_2Eq.$
WaterSense Program	7 $MMTCO_2Eq.$
Executive Order 13514[3] GHG Reduction Program	0.18 $MMTCO_2Eq.$

- By 2018, an additional 240 state, tribal, and community partners will integrate climate change data, models, information, and other decision-support tools developed by EPA for climate change adaptation into their planning processes. (Baseline: 0.)[4,5]
- By 2018, 240 state, tribal, and community partners will incorporate climate change adaptation into the implementation of their environmental programs supported by major EPA financial mechanisms (grants, loans, contracts, and technical assistance agreements). (Baseline: 5.)[5]
- By 2018, 6 existing or new EPA-developed training programs will incorporate climate change adaptation planning for EPA staff, state, tribal, and community partners (includes programmatic and cross-programmatic trainings). (Baseline: 0.)[5]

Objective 1.2: Improve Air Quality. Achieve and maintain health- and welfare-based air pollution standards and reduce risk from toxic air pollutants and indoor air contaminants.

Strategic Measures

Reduce Criteria Pollutants and Regional Haze

- By 2018, the population-weighted average concentrations of ozone (smog) in all monitored counties will decrease to 0.072 ppm compared to the average of 0.076 ppm in 2011, a reduction of 5 percent.
- By 2018, the population-weighted average concentrations of inhalable fine particles in all monitored counties will decrease to 9.5 $\mu g/m^3$ compared to the average of 10.4 $\mu g/m^3$ in 2011, a reduction of 9 percent.
- Through 2018, maintain emissions of sulfur dioxide (SO2) from electric power generation sources to 5.0 million tons per year compared to the 2009 level of 5.7 million tons emitted. (In 2011, these sources emitted 4.5 million tons.) (Rationale for baseline year: 2009 is the year immediately preceding the first year of SO2 compliance under the Clean Air Interstate Rule (CAIR) and full implementation of Acid Rain's permanent cap on utility SO2 emissions.)
- By 2018, visibility in scenic parks and wilderness areas will improve by 15 percent in the east and 5 percent in the west, on the 20 percent worst visibility days, as compared to visibility on the 20 percent worst days during the 2000–2004 baseline.
- By 2018, with EPA support including training, policy, and administrative and technical assistance, tribes will receive 15 additional approvals to implement the Clean Air Act in Indian country (as demonstrated by successful completion of an eligibility determination under the Tribal Authority Rule). The cumulative total will be 62 approved eligibility determinations, from the 2012 baseline of 47.

Reduce Air Toxics

- Through 2018, maintain air toxics (toxicity-weighted for cancer) emissions reductions to 4.2 million tons from the 1993 toxicity-weighted baseline of 7.2 million tons.[6]

Reduce the Adverse Ecological Effects of Acid Deposition

- Through 2018, maintain improvements to approximately 10 percent of the chronically acidic lakes and stream reaches in the east identified in the 2001 baseline survey of stream and lake measurements conducted in the 1990s and maintain associated ecosystem health gains in acid-sensitive regions of the northern and eastern United States.

Reduce Exposure to Indoor Air Pollutants

- By 2018, the number of future premature lung cancer deaths prevented annually through lowered radon exposure will increase to 1,056 from the 2008 baseline of 756 future premature lung cancer deaths prevented. The 2011 benchmark is 905 future premature lung cancer deaths prevented.
- By 2018, the number of people taking all essential actions to reduce exposure to indoor environmental asthma triggers in homes and schools will increase to 9 million from the 2003 baseline of 3.0 million. EPA will place special emphasis on reducing racial and ethnic asthma disparities among children. The 2012 benchmark is 6.5 million people taking all essential actions to reduce exposure to indoor environmental asthma triggers.

Objective 1.3: Restore and Protect the Ozone Layer. Restore and protect the earth's stratospheric ozone layer and protect the public from the harmful effects of ultraviolet (UV) radiation.

Strategic Measures

Reduce Consumption of Ozone-Depleting Substances

- By 2015, U.S. consumption of hydrochlorofluorocarbons (HCFCs), chemicals that deplete the Earth's protective ozone layer, will be less than 1,520 tons per year of ozone depletion potential from the 2009 baseline of 9,900 tons per year. By this time, as a result of worldwide reduction in ozone-depleting substances, the level of "equivalent effective stratospheric chlorine" (EESC) in the atmosphere will have peaked at 3.185 parts per billion (ppb) of air by volume and begun its gradual decline to less than 1.800 ppb (1980 level).

Note: This strategic measure will not be adjusted at this time because the baseline dates and milestones are set through the international treaty, the Montreal Protocol.

Objective 1.4: Minimize Exposure to Radiation. Minimize releases of radioactive material and be prepared to minimize exposure through response and recovery actions should unavoidable releases occur.

Strategic Measures

Prepare for Radiological Emergencies

- Through 2018, EPA will maintain a 93 percent level of readiness of radiation emergency response program personnel and assets that meet functional requirements necessary to support federal radiological emergency response and recovery operations. (The 2012 readiness baseline is 91.5 percent. The level of readiness measure is based on the Agency's Core National Approach to Response (Core NAR) assessment process.[7])

End Notes

1. Industrial Programs include ENERGY STAR for Industry, Natural Gas STAR, Coalbed Methane Outreach Program (CMOP), Landfill Methane Outreach Program (LMOP), Green Power Partnership, Combined Heat and Power (CHP) Partnership, Voluntary Aluminum Industry Partnership (VAIP), HFC-23 Emission Reduction Partnerships, Mobile Air Conditioning Climate Protection Partnership (MAC), Environmental Stewardship Initiative, Significant New Alternatives Policy Program (SNAP), Responsible Appliance Disposal Program (RAD), GreenChill Advanced Refrigeration Partnership, and Landfill Rule.

2. For this *Plan*, Sustainable Materials Management Programs include 10 percent National Recycling Tonnage and 100 percent Electronics Challenge Participant, Federal Green Challenge Participant, and Food Recovery Challenge Participant results.

3. The Federal Leadership in Environmental, Energy, and Economic Performance Executive Order was signed on October 5, 2009. The Executive Order sets sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance.

4. EPA maintains strong partnerships with other federal agencies by working closely with them to develop decision-support tools for climate adaptation. EPA often uses data, models, and tools from other agencies as it develops new decision-support tools focused specifically on integrating adaptation planning into its programs and policies. For example, EPA's Water Erosion Prediction Project Climate Assessment Tool (WEPPCAT) provides users with a capability to assess the potential impacts of climate change on sediment loading to streams using the U.S. Department of Agriculture's Water Erosion Prediction Project (WEPP) Model. Similarly,

EPA shares decision tools that it develops, such as the Climate Resilience Evaluation and Awareness Tool (CREAT), with other federal agencies. EPA actively pursues these collaborative efforts through the Council on Environmental Quality (CEQ) Agency Adaptation Working Group, through the U.S. Global Change Research Program's Adaptation Science Work Group, and through project-based collaborations.

5. This measure reflects outcomes from the cumulative efforts across all of the Agency's media programs (air, water, waste, and toxics and pesticides programs) and regional offices.

6. The 2018 target is an estimate based on the 2008 National Emissions Inventory (NEI) released in 2011.

7. The level of readiness measure is based on the Agency's Core NAR assessment process. Core NAR is an Agency-wide process that provides a comprehensive numerical assessment of each aspect of the Agency's emergency response programs, including the Radiological Emergency Response Team and supporting radiation emergency response program.

Goal 2: Protecting America's Waters. Protect and restore waters to ensure that drinking water is safe and sustainably managed, and that aquatic ecosystems sustain fish, plants, wildlife, and other biota, as well as economic, recreational, and subsistence activities.

Objective 2.1: Protect Human Health. Achieve and maintain standards and guidelines protective of human health in drinking water supplies, fish, shellfish, and recreational waters, and protect and sustainably manage drinking water resources.

Strategic Measures

Water Safe to Drink

- By 2018, 92 percent of community water systems will provide drinking water that meets all applicable health-based drinking water standards through approaches including effective treatment and source water protection. (2005 baseline: 89 percent. FY 2013 universe: 51,535 community water systems. Status as of FY 2013: 91.4 percent.)
- By 2018, 88 percent of the population in Indian country served by community water systems will receive drinking water that meets all applicable health-based drinking water standards. (2005 baseline: 86 percent. FY 2013 universe: 1,013,222 people in Indian county served by community water systems. Status as of FY 2013: 77 percent.)
- By 2018 in coordination with other federal agencies, provide access to safe drinking water for 148,100 American Indian and Alaska Native homes. (Status as of FY 2013: 108,881 homes. Universe: 360,000 homes.)

Fish and Shellfish Safe to Eat

- By 2018, reduce the percentage of women of childbearing age having mercury levels in blood above the level of concern to 2.1 percent. (2012 baseline (2009–2010 data): 2.3 percent of women of childbearing age have mercury blood levels above levels of concern identified by the National Health and Nutrition Examination Survey (NHANES).)

Water Safe for Swimming

- By 2018, maintain the percentage of days of the beach season that coastal and Great Lakes beaches monitored by state beach safety programs are open and safe for swimming at 95 percent. (2012 baseline (2011 data): Beaches open 95 percent of the 694,191 days of the beach season (beach season days are equal to 3,650 monitored beaches multiplied by variable number of days of beach season at each beach). Status as of FY 2013: 96 percent.)

Objective 2.2: Protect and Restore Watersheds and Aquatic Ecosystems.

Protect, restore, and sustain the quality of rivers, lakes, streams, and wetlands on a watershed basis, and sustainably manage and protect coastal and ocean resources and ecosystems.

Strategic Measures

Improve Water Quality on a Watershed Basis

- By 2018, attain water quality standards for all pollutants and impairments in more than 4,430 water bodies identified in 2002 as not attaining standards (cumulative). (2002 universe: 39,798 water bodies identified by states and tribes as not meeting water quality standards. Water bodies where mercury is among multiple pollutants causing impairment may be counted toward this target when all pollutants but mercury attain standards, but must be identified as still needing restoration for mercury. 1,703 impaired water bodies are impaired by multiple pollutants including mercury, and 6,501 are impaired by mercury alone. Status as of FY 2013: 3,679 water bodies attained standards.)
- By 2018, improve water quality conditions in 575 impaired watersheds nationwide using the watershed approach (cumulative). (2002 baseline: Zero watersheds improved of an estimated 4,800 impaired watersheds of focus having one or more water bodies impaired. The watershed boundaries for this measure are those established at the "12-digit" scale by the U.S. Geological Survey (USGS). Watersheds at this scale average 22 square miles in size. "Improved" means that one or more of the impairment causes identified in 2002 are removed for at least 40 percent of the impaired water bodies or impaired miles/acres, or there is significant watershed-wide improvement, as demonstrated by valid scientific information, in one or more water quality parameters associated with the impairments. Status as of FY 2013: 376 improved watersheds.)
- Through 2018, ensure that the condition of the nation's rivers and streams, lakes, wetlands, and coastal water does not degrade (i.e., there is no statistically significant increase in the percent rated "poor" and no statistically significant decrease rated "good.") (2006 baseline for streams: 28 percent in good condition; 25 percent in fair condition; 42 percent in poor condition. 2010 baseline for lakes: 56 percent in good condition; 21 percent in fair condition; 22 percent in poor condition. 2014 baseline for wetlands will be available December 2014. 2014 baseline for coastal will be available December 2014.)
- By 2018, improve water quality in Indian country at 50 or more baseline monitoring stations in tribal waters (cumulative) (i.e., show improvement in one or more of seven key parameters: dissolved oxygen, pH, water temperature, total nitrogen, total phosphorus, pathogen indicators, and turbidity) and identify monitoring stations on tribal lands that are showing no degradation in water quality (meaning the waters are meeting uses). (2006 baseline: 185 monitoring stations on tribal waters located where water quality has been depressed and activities are underway or planned to improve water quality, out of an estimated 2,037 stations operated by tribes.)
- By 2018, in coordination with other federal agencies, provide access to basic sanitation for 91,900 American Indian and Alaska Native homes. (Status as of FY 2013 baseline: 69,783 homes. Universe: 360,000 homes.)

Improve Coastal and Ocean Waters

- By 2018, improve regional coastal aquatic ecosystem health, as measured on the "good/fair/poor" scale of the National Coastal Condition Report. (FY 2012 baseline: National rating of "fair" or 3.0 where the rating is based on a 4-point system ranging from 1.0 to 5.0 in which 1 is "poor" and 5 is "good" using the National Coastal Condition Report indicators for water and sediment, coastal habitat, benthic index, and fish contamination.)

- By 2018, 95 percent of active dredged material ocean dumping sites, as determined by 3-year average, will have achieved environmentally acceptable conditions (as reflected in each site's management plan and measured through onsite monitoring programs). (2013 baseline: 96 percent. FY 2012 universe is 67.) (Due to variability in the universe of sites, results vary from year to year (e.g., between 85 percent and 99 percent). While this much variability is not expected every year, the results are expected to have some change each year.)

- By 2018, working with partners, protect or restore an additional (i.e., measuring from 2012 forward) 600,000 acres of habitat within the study areas for the 28 estuaries that are part of the National Estuary Program. (2013 baseline: 1,295,327 acres of habitat protected or restored, cumulative from 2002–2013. In FY 2013, 127,594 acres were protected or restored.)

Increase Wetlands

- By 2018, working with partners, achieve a net increase of wetlands nationwide, with additional focus on coastal wetlands, and biological and functional measures and assessment of wetland condition. (2012 baseline: 110.1 million acres of wetlands in the conterminous United States, and 62,300 wetland acres were lost over 2004–2009.) ("No net loss" of wetlands is based on requirements for mitigation in CWA Section 404 permits and not the actual mitigation attained.)

Great Lakes

- By 2018, implement all management actions necessary for later delisting at 12 Areas of Concern in the Great Lakes (cumulative). (2013 baseline: 3.)[1]

- By 2018, implement and evaluate actions necessary to protect, restore, or enhance 20 percent of U.S. Great Lakes coastal wetlands greater than 10 acres. (2013 baseline: 0.)[2]

Chesapeake Bay

- By 2018, achieve 45 percent attainment of water quality standards for dissolved oxygen, water clarity/underwater grasses, and chlorophyll a in Chesapeake Bay and tidal tributaries. (2011 Baseline: 40 percent.)[3]

Gulf of Mexico

- By 2018, support best management practices and projects to reduce releases of nutrients throughout the Mississippi River Basin to aid in the reduction of the size of the hypoxic zone in the Gulf of Mexico to less than 5,000 km^2, as measured by the 5-year running average of the size of the zone. (Baseline: 2005–2009 running average size is 15,670 km^2.)[4]

Long Island Sound

- By 2018, reduce the maximum area of hypoxia in Long Island Sound by 15 percent from the pre-TMDL average of 208 square miles as measured by the 5-year running average size of the zone. (Baseline: Pre-total maximum daily load (TMDL) average conditions based on 1987–1999 data is 208 square miles. Post-TMDL includes years 2000–2017. Universe: The total surface area of Long Island Sound is approximately 1,268 square miles; the potential for the maximum area of hypoxia would be 1,268 square miles.)

Puget Sound Basin

- By 2018, improve water quality and enable the lifting of harvest restrictions in 6,000 acres of shellfish bed growing areas impacted by degraded or declining water quality in the Puget Sound. (2013 baseline: 3,203 acres of shellfish beds with harvest restrictions in 2006 had their restrictions lifted. Universe: 30,000 acres of commercial shellfish beds with harvest restrictions in 2006.)

U.S.–Mexico Border Environmental Health

- By 2018, provide access to safe drinking water and adequate wastewater sanitation to 75 percent and 90 percent, respectively, of the homes in the U.S.–Mexico Border area that lacked access to either service in 2003. (2003 Universe: 98,515 homes lacked drinking water and 690,723 homes lacked adequate wastewater sanitation based on a 2003 assessment of homes in the U.S.–Mexico Border area. 2018 target: 73,886 homes provided with access to safe drinking water and 621,651 homes with adequate wastewater sanitation.)

End Notes

1. "Great Lakes management actions necessary for later delisting" are the identified local, state, and federal actions that are believed to be necessary to remove the beneficial use impairments of the Area of Concern. Once taken, these actions are expected to allow environmental conditions to improve over time which will lead to eventual delisting of the Area of Concern.

2. Only about 600 coastal wetlands greater than 10 acres in size remain on the roughly 5,500 miles of Great Lakes shoreline in the U.S. Coastal wetlands are immensely important ecologically and economically. The proposed actions will demonstrate quantitative and qualitative results from strategic efforts to protect, restore, and enhance the coastal wetlands assessed under the Great Lakes Restoration Initiative.

3. Achievement of the 2018 target will be evaluated using monitoring data from 2015, 2016, and 2017 to assess attainment of applicable water quality standards in each of the Bay's 291 designated-use segments. The 2011 baseline reflects monitoring data from 2008, 2009, and 2010.

4. The size of the hypoxic zone in the Gulf of Mexico is influenced by multiple factors, including releases of nutrients. The reduction of nutrient releases from the Mississippi River Basin is influenced by actions, practices, and resources from the collaboration of federal, state, tribal, and local stakeholders.

Goal 3: Cleaning Up Communities and Advancing Sustainable Development. Clean up communities, advance sustainable development, and protect disproportionately impacted low-income and minority communities. Prevent releases of harmful substances and clean up and restore contaminated areas.

Objective 3.1: Promote Sustainable and Livable Communities. Support sustainable, resilient, and livable communities by working with local, state, tribal, and federal partners to promote smart growth, emergency preparedness and recovery planning, redevelopment and reuse of contaminated and formerly contaminated sites, and the equitable distribution of environmental benefits.

Strategic Measures

Promote Sustainable Communities

- By 2018, reduce the air, water, land, and human health impacts of new growth and development through the use of smart growth and sustainable development strategies in 600 (cumulative) communities, which includes tribal governments, local municipalities, regional entities, and state governments, through activities resulting from EPA and federal partner actions. (Baseline: In FY 2013, an estimated 102 communities were assisted.)[1]

Assess and Clean Up Brownfields

- By 2018, conduct environmental assessments at 26,350 (cumulative) brownfield properties. (Baseline: As of the end of FY 2012, EPA assessed 19,154 properties.)
- By 2018, make an additional 16,800 acres of brownfield properties ready for reuse from the 2012 baseline. (Baseline: As of the end of FY 2012, EPA made 25,408 acres ready for reuse.)

Reduce Chemical Risks at Facilities and in Communities

- By 2018, conduct 2,300 inspections at risk management plan (RMP) facilities. (Baseline: between FY 2000 and FY 2012, more than 7,400 RMP inspections were completed.)[2]

Objective 3.2: Preserve Land. Conserve resources and prevent land contamination by reducing waste generation and toxicity, promoting proper management of waste and petroleum products, and increasing sustainable materials management.

Strategic Measures

Waste Generation and Recycling

- By 2018, increase by 500,000 tons the amount of virgin materials that were offset by the reuse or recycling of waste products through the use of sustainable materials management. (Baseline: In FY 2013, an estimated 8,500,000 tons of waste products will be reused or recycled through sustainable materials management practices.)[3]
- By 2018, increase by 50 the number of tribes covered by an integrated waste management plan compared to FY 2013. (Baseline: As of March 2013, 160 of 574 federally recognized tribes were covered by an integrated waste management plan.)[4]

Minimize Releases of Hazardous Waste and Petroleum Products

- By 2018, prevent releases at 500 additional hazardous waste management facilities by issuing initial approved controls or updated controls resulting in the protection of an estimated 20 million people living within a mile of all facilities with controls.[5] (Baseline: At the end of FY 2013, 1,220 facilities require these controls out of the universe of 6,600 facilities, with over 20,000 process units.)
- By 2018, prevent exposures at polychlorinated biphenyl (PCB) sites by issuing 750 approvals for PCB cleanup, storage, and disposal activities.
- Each year through 2018, increase the percentage of underground storage tank (UST) facilities that are in significant operational compliance (SOC) with both release detection and release prevention requirements by 0.5 percent over the previous year's target. (Baseline: This means an increase of facilities in SOC from an estimated 70 percent in 2014 to 72 percent in 2018.)
- Each year through 2018, reduce the number of confirmed releases at UST facilities to 5 percent fewer than the prior year's target. (Baseline: Between FY 2008 and FY 2012, confirmed UST releases averaged 6,500.)

Objective 3.3: Restore Land. Prepare for and respond to accidental or intentional releases of contaminants and clean up and restore polluted sites for reuse.

Strategic Measures

Emergency Preparedness and Response

- By 2018, achieve and maintain at least 85 percent of the maximum score on the Core National Approach to Response (NAR) evaluation criteria. (Baseline: In FY 2012, the average Core NAR Score was 76 percent for EPA headquarters, regions, and special teams prepared for responding to emergencies.)[6]
- By 2018, complete an additional 1,395 Superfund removals. (Baseline: In FY 2013, there were 295 Superfund removal actions completed.)
- By 2018, bring into compliance 60 percent of facility response plan (FRP) inspected facilities found to be non-compliant. (Baseline: In FY 2010, 268 FRP facilities were inspected and 121 were found to be non-compliant, an initial compliance rate of 55 percent.)
- By 2018, bring into compliance 60 percent of spill prevention, control, and countermeasure (SPCC) inspected facilities found to be non-compliant. (Baseline: In FY 2010, 781 SPCC facilities were inspected and 456 were found to be non-compliant, an initial compliance rate of 42 percent.)

Clean Up Contaminated Land

- By 2018, complete 95,500 assessments at potential hazardous waste sites to determine if they warrant Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial response or other cleanup activities. (Baseline: As of 2012, the cumulative total number of assessments completed was 91,300.)
- By 2018, increase to 92 percent the number of Superfund sites and Resource Conservation and Recovery Act (RCRA) facilities where human exposures to toxins from contaminated sites are under control. (Baseline: As of October 2013, an estimated 83 percent of Superfund sites and 85 percent of RCRA facilities had human exposures under control out of a combined universe of 5,451.)[7]
- By 2018, increase to 86 percent the number of RCRA facilities with migration of contaminated groundwater under control. (Baseline: At the end of FY 2013, the migration of contaminated groundwater was controlled at 76 percent of all 3,779 facilities needing corrective action.)
- By 2018, increase to 73 percent the number of RCRA facilities with final remedies constructed. (Baseline: At the end of FY 2013, all cleanup remedies were constructed at an estimated 51 percent of all 3,779 facilities needing corrective action.)
- By 2018, increase to 25 percent the number of RCRA facilities with corrective action performance standards attained. (Baseline: At the end of FY 2013, performance standards were attained at an estimated 20 percent of all 3,779 RCRA facilities requiring corrective action.)[8]
- Each year through 2018, reduce the backlog of LUST cleanups (confirmed releases that have yet to be cleaned up) that do not meet risk-based standards for human exposure and groundwater migration by 1 percent. This means a decrease from 16 percent in 2012 to 10 percent in 2018. (At the end of FY 2012, there were 82,903 releases not yet cleaned up.)
- Each year through 2018, reduce the backlog of LUST cleanups (confirmed releases that have yet to be cleaned up) in Indian country that do not meet applicable risk-based standards for human exposure and groundwater migration by 1 percent. This means a decrease from 23 percent in 2012 to 17 percent in 2018.
- By 2018, ensure that 946 Superfund sites are "sitewide ready for anticipated use." (Baseline: As of October 2012, 606 Superfund sites had achieved "sitewide ready for anticipated use" out of a universe of 1,742 sites.)[9]

Objective 3.4: Strengthen Human Health and Environmental Protection in Indian Country. Directly implement federal environmental programs in Indian country and support federal program delegation to tribes. Provide tribes with technical assistance and support capacity development for the establishment and implementation of sustainable environmental programs in Indian country.

Strategic Measures

Improve Human Health and the Environment in Indian Country

- By 2015, increase the percent of tribes implementing federal regulatory environmental programs in Indian country to 25 percent. (FY 2009 baseline: 22 percent of 572 tribes.)
- By 2015, increase the percent of tribes conducting EPA-approved environmental monitoring and assessment activities in Indian country to 58 percent. (FY 2012 baseline: 54 percent of 572 tribes.)

End Notes

1. Included in the cumulative number are communities receiving assistance from: (1) direct EPA technical assistance programs; (2) EPA-funded grants and cooperative agreements to non-governmental organizations; and (3) in a limited number of communities (i.e., 6 of the total 34 communities in the FY 2010 baseline), technical assistance done in collaboration with other EPA programs (such as EPA's brownfields program) and other federal agencies (such as the Federal Emergency Management Agency and the U.S. Departments of Transportation and Housing and Urban Development).

2. The number of inspections may change based on higher priorities coming from the Executive Order on Chemical Plant Safety and Security.

3. EPA's description of activities supporting our virgin materials offset measure can be found in the Goal 3 narrative.

4. EPA is discontinuing the tribal open dump closure and clean up measure in this Strategic Plan to focus on EPA's main tribal solid waste priority, which is the promotion of sustainable tribal waste management programs through the development and implementation of Integrated Waste Management Plans (IWMPs).

5. Estimate drawn from OSWER Near Site Population Database, an internal EPA database that merges facility size and location information from RCRAInfo with population data, at the block and block group levels, from the U.S. Census Bureau's 2000 Census. The demographics were captured around the total number of facilities that have approved controls in place that result in the protection of this population (20 million people).

6. Consistent with the government-wide National Response Framework (NRF), EPA will work to fully implement the priorities under its internal NAR so that the Agency is prepared to respond to multiple nationally significant incidents. Core NAR builds upon the core emergency response concept while integrating the priority elements of EPA's NAR Preparedness Plan, and the Homeland Security Priority Workplan, to reflect an Agency-wide assessment of progress.

7. Superfund sites include sites placed on or deleted from the Final National Priorities List (NPL) and sites addressed under the Superfund Alternative Approach process. EPA is currently revising its dioxin risk assessment which may affect the targets and baselines for the human exposures under control and "sitewide ready for anticipated use" measures.

8. Attaining performance standards is the final cleanup step for a corrective action facility (e.g., soil cleanup standards met, groundwater cleanup levels achieved). Other measures for controlling human exposures and groundwater migration and for completing remedy construction identify critical interim steps in the cleanup process.

9. Superfund sites include sites placed on or deleted from the Final National Priorities List (NPL) and sites addressed under the Superfund Alternative Approach process.

Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution. Reduce the risk and increase the safety of chemicals and prevent pollution at the source.

Objective 4.1: Ensure Chemical Safety. Reduce the risk and increase the safety of chemicals that enter our products, our environment, and our bodies.

Strategic Measures

Protect Human Health from Chemical Risks

- By 2018, reduce by 30 percent the number of moderate to severe exposure incidents associated with organophosphates and carbamate insecticides in the general population. (Baseline for moderate to severe exposure incidents reported during 2011 is 274, as reported in the American Association of Poison Control Centers' National Poisoning Data System (NPDS) for organophosphates and carbamate pesticides.)
- Through 2018, work to ensure that the percentage of children with blood lead levels above 5 µg/dl does not rise above the 1.0 percent target for FY 2014 and work to make further reductions in blood lead levels. (Baseline is 2.6 percent of children ages 1–5 had elevated blood lead levels (5 ug/dl or greater) in the 2007–2010 sampling period according to the Centers for Disease Control and Prevention's (CDC's) National Health and Nutritional Evaluation Survey (NHANES).)
- By 2018, reduce the percent difference in the geometric mean blood lead level in low-income children 1–5 years old as compared to the geometric mean for non-low income children 1–5 years old to 10.0 percent. (Baseline is 28.4 percent difference in the geometric mean blood lead level in low-income children ages 1–5 years old as compared to the geometric mean for non-low income children 1–5 years old in 2007–2010 sampling period according to CDC's NHANES.)
- By 2018, reduce the concentration of perfluorooctanoic acid (PFOA) in blood serum in the general population by 20 percent. (PFOA baseline is based on 2009–2010 geometric mean data in serum (3.07 µg/L) from the CDC's NHANES.)
- By 2018, complete endocrine disruptor screening program (EDSP) decisions for 100 percent of chemicals for which complete EDSP data are expected to be available by the end of 2017. (Baseline is 15 decisions have been completed through 2012 for any of the chemicals for which complete EDSP information is anticipated to be available by the end of 2017. EDSP decisions for a chemical can range from determining potential to interact with the estrogen, androgen, or thyroid hormone systems to otherwise determining whether further endocrine related-testing is necessary.)
- By 2018, reduce rodenticide exposure incidents by 75 percent in children ages 1–6. (The baseline total number of confirmed and likely rodenticide exposures to children ages 1–6 in 2011 is 10,259 according to data by the Poison Control Centers' National Poison Data System.)
- By 2018, EPA will have assessed all currently identified TSCA work plan chemicals. (Baseline is zero assessments finalized for the 83 initially identified TSCA work plan chemicals through 2012.)

Protect Ecosystems from Chemical Risks

- By 2018, no watersheds will exceed aquatic life benchmarks for targeted pesticides. (Data for 2012 provides the most recent percent of agricultural watersheds sampled by the USGS National Water Quality Assessment (NAWQA) program that exceeds the national pesticide program aquatic life benchmarks for azinphos-methyl (7 percent) and chlorpyrifos (7 percent). Urban watersheds sampled by the NAWQA program that exceeds the national pesticide program aquatic life benchmarks for diazinon (0 percent), chlorpyrifos (0 percent), and carbaryl (9 percent).)

Objective 4.2: Promote Pollution Prevention. Conserve and protect natural resources by promoting pollution prevention and the adoption of other sustainability practices by companies, communities, governmental organizations, and individuals.

Strategic Measures

Prevent Pollution and Promote Environmental Stewardship

- By 2018, reduce 600 million pounds of hazardous materials cumulatively through pollution prevention. (Baseline is 578 million pounds reduced from FY 2008 through FY 2012, after removing 626 million pounds in reported results that should not be expected to continue in future years due to atypical results, and increased quality assurance standards for the results that come from states and other grant recipients.)
- By 2018, reduce 7 million metric tons of carbon dioxide equivalent ($MMTCO_2Eq.$) cumulatively through pollution prevention. (Baseline is 7 $MMTCO_2Eq.$ reduced from FY 2008 through FY 2012, after removing 3.5 $MMTCO_2Eq$ in reported results that should not be expected to continue in future years due to atypical results, and increased quality assurance standards for the results that come from states and other grant recipients. The data from this measure are also calculated into the Agency's overall greenhouse gas measure under Goal 1.)
- By 2018, reduce 6.9 billion gallons of water use cumulatively through pollution prevention. (Baseline is 6.9 billion gallons reduced from FY 2008 through FY 2012, after removing 24 billion gallons in reported results that should not be expected to continue in future years due to atypical results, and increased quality assurance standards for the results that come from states and other grant recipients.)
- By 2018, save $1.3 billion in business, institutional, and government costs cumulatively through pollution prevention improvements. (Baseline is $1.33 billion saved from FY 2008 through FY 2012, after removing $231 million in reported results that should not be expected to continue in future years due to atypical results, and increased quality assurance standards for the results that come from states and other grant recipients.)
- By 2018, increase the number of safer chemicals and safer chemical products cumulatively by 1,900. (Baseline is 600 safer chemicals and 2,500 safer chemical products recognized in 2013 by the Design for the Environment program.)

Goal 5: Protecting Human Health and the Environment by Enforcing Laws and Assuring Compliance.

Protect human health and the environment through vigorous and targeted civil and criminal enforcement. Use Next Generation Compliance strategies and tools to improve compliance with environmental laws.

Objective 5.1: Enforce Environmental Laws to Achieve Compliance.

Pursue vigorous civil and criminal enforcement that targets the most serious water, air, and chemical hazards in communities to achieve compliance. Assure strong, consistent, and effective enforcement of federal environmental laws nationwide. Use Next Generation Compliance strategies and tools to improve compliance and reduce pollution.

Strategic Measures

Note: The enforcement measures in this Plan *reflect level-of-effort measures that focus on large, complex cases that require a strong investment in enforcement work but yield significant health and environmental improvements.*

Targets for most of the enforcement measures will remain steady over the life of this Strategic Plan. We intend to retain the targets, for example, of the percentage of criminal cases where individuals are charged and our continued monitoring of compliance with existing consent decrees. For some other measures, the strategic direction outlined in this Plan will affect the targets, as briefly described here.

Our commitment to the largest, most complex cases that have the biggest impact necessarily means that we will be doing fewer cases overall. When budgets have declined, this effect has become more apparent. This strategy will also help maintain the enforcement program's effectiveness. The 5-year targets for the enforcement program's strategic measures reflect the anticipated effects of this approach. For the sectors with the largest cases, we tackle the biggest sources first. In the sectors with large amounts of pollution that affects health, such as coal-fired power plants and the largest dischargers of raw sewage, the total pounds of pollution reduced as a result of enforcement cases will decline over time as we work our way down the list. In addition, as we are increasingly targeting large sources of toxic pollution, we expect that the total pounds reduced will be less overall than enforcement cases that reduce larger volume, but less toxic, conventional pollutants.

EPA will also focus its inspection efforts on the largest facilities and violations in order to maintain our commitment to ensuring compliance at the largest facilities, and the air, water, and waste problems that make the most difference. Our improved ability to target inspections as a result of Next Generation Compliance should allow us to be more effective with our inspection resources, and to monitor facilities via advanced monitoring, so we can continue to protect the public and maintain a level playing field for business.

Maintain Enforcement Presence[1,2]

- By 2018, conduct 79,000 federal inspections and evaluations (5-year cumulative). (FY 2005–2009 baseline: 21,000 annually. Status for FY 2013: 18,000.)
- By 2018, initiate 14,000 civil judicial and administrative enforcement cases (5-year cumulative). (FY 2005–2009 baseline: 3,900 annually. Status for FY 2013: 2,400.)
- By 2018, conclude 13,600 civil judicial and administrative enforcement cases (5-year cumulative). (FY 2005–2009 baseline: 3,800 annually. Status for FY 2013: 2,500.)
- By 2018, maintain review of the overall compliance status of 100 percent of the open consent decrees. (Baseline 2009: 100 percent. Status for FY 2013: 91 percent.)
- Each year through 2018, support cleanups and save federal dollars for sites where there are no

alternatives by: (1) reaching a settlement or taking an enforcement action before the start of a remedial action at 99 percent of Superfund sites having viable responsible parties other than the federal government; and (2) addressing all cost recovery statute of limitation cases with total past costs greater than or equal to $500,000. ((1) FY 2007-2009 annual average baseline: 99 percent of sites reaching a settlement or EPA taking an enforcement action. (Status for FY 2013: 100 percent.); (2) FY 2009 baseline: 100 percent cost recovery statute of limitation cases addressed. (Status for FY 2013: 100 percent.))

Support Addressing Climate Change and Improving Air Quality

- By 2018, reduce, treat, or eliminate 1,590 million estimated pounds of air pollutants as a result of concluded enforcement actions (5-year cumulative). (FY 2005–2008 baseline: 480 million pounds, annual average over the period. Status for FY 2013: 610 million pounds.)

Support Protecting America's Waters

- By 2018, reduce, treat, or eliminate 1,280 million estimated pounds of water pollutants as a result of concluded enforcement actions (5-year cumulative). (FY 2005–2008 baseline: 320 million pounds, annual average over the period. Status for FY 2013: 660 million pounds.)

Support Cleaning Up Communities and Advancing Sustainable Development

- By 2018, treat, minimize, or properly dispose of 14,600 million estimated pounds of hazardous waste as a result of concluded enforcement actions (5-year cumulative). (FY 2008 baseline: 6,500 million pounds. Status for FY 2013: 150 million pounds.)[3]
- By 2018, obtain commitments to clean up 1,025 million cubic yards of contaminated soil and groundwater media[4] as a result of concluded CERCLA and RCRA corrective action enforcement actions (5-year cumulative). (FY 2007–2009 baseline: 300 million cubic yards of contaminated soil and groundwater media, annual average over the period. Status for FY 2013: 750 million cubic yards.)

Support Ensuring the Safety of Chemicals and Preventing Pollution

- By 2018, reduce, treat, or eliminate 14 million estimated pounds of toxic and pesticide pollutants as a result of concluded enforcement actions (5-year cumulative). (FY 2005–2008 baseline: 3.8 million pounds, annual average over the period. Status for FY 2013: 4.6 million pounds.)

Enhance Strategic Deterrence through Criminal Enforcement

- By 2018, increase the percentage of criminal cases having the most significant health, environmental, and deterrence impacts to 45 percent. (FY 2010 baseline: 36 percent. Status for FY 2013: 44 percent.)[5]
- By 2018, maintain 75 percent of criminal cases with an individual defendant. (FY 2006–2008 baseline: 75 percent. Status for FY 2013: 80 percent.)
- By 2018, increase the percentage of criminal cases with charges filed to 45 percent. (FY 2006–2010 baseline: 36 percent. Status for FY 2013: 38 percent.)
- By 2018, maintain an 85 percent conviction rate for criminal defendants. (FY 2006–2010 baseline: 85 percent. Status for FY 2013: 94 percent.)

End Notes

1. The 5-year targets presented in this final document have been updated from what was presented in the draft Strategic Plan, which was based on conservative budget estimates; the revised projections incorporate updated budget information. More recent data on results for the enforcement program also helped inform our projections.

2. All numbers used throughout the measures section are rounded.

3. Some years have higher goals based on the anticipated conclusion of cases under EPA's Mineral Processing National Enforcement Initiative. Cases outside this initiative addressing other industry sectors will still yield significant results, but the volumes of hazardous waste in those cases will typically be smaller.

4. Contaminated groundwater media, as defined for the Superfund and RCRA corrective action programs, is the volume of physical aquifer (both soil and water) that will be addressed by the response action.

5. EPA collects data on a variety of case attributes to describe the range, complexity, and quality of our criminal enforcement national docket. This measure reflects the percentage of cases having the most significant health, environmental, and deterrence impacts.

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