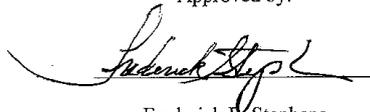


**U.S Department of Commerce**  
**2014 Strategic Sustainability Performance Plan**  
**June 30, 2014**

Approved by:

A handwritten signature in black ink, appearing to read "Frederick Stephens", written over a horizontal line.

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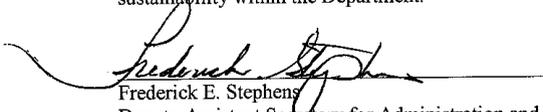
## POLICY STATEMENT

The U.S. Department of Commerce (Department) will maintain our long-held commitment to creating a sustainable environment and energy future through both our policies and actions to increase our nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of the environment. To further demonstrate our commitment to sustainability, we will annually update and publish a Strategic Sustainability Performance Plan (SSPP) containing our agency priorities for the coming year.

Over the next twelve months, the Department plans to do the following:

- Update its greenhouse gas inventory;
- Deploy any corrective actions necessary to address identified barriers to increasing sustainable procurements, through the Department's Independent Verification and Validation of Federal Procurement Data;
- Award performance-based contracts under an interagency agreement with the Department of Justice/Federal Prison Industries to acquire alternatively financed energy efficiency projects and renewable energy purchases at Commerce facilities;
- Strive to source 7.5 percent of our electricity from renewable energy;
- Replace five vehicles with hybrid vehicles in metropolitan areas where heavy traffic or traffic congestion is prevalent in an effort to minimize fuel costs;
- Submit a revised Telework Policy to the unions in accordance with their National Consultation Rights;
- Empower employees to approach energy-conservation challenges creatively--through energy working groups, employee "Green Teams," and energy-awareness campaigns;
- Maintain collaborative relationships with other Federal agencies to augment limited resources and take advantage of expertise across the Federal Government;
- Continue implementation of the Environmental Protection Agency's ENERGY STAR® Portfolio Manager to track energy usage and overall building performance across Commerce facilities;
- Comply with all relevant environmental and energy statutes, regulations, and Executive Orders (EOs);
- Maintain a "Green Store" at Department headquarters that will provide an easy-access opportunity for employees to reuse excess office supplies;
- Award up to \$300,000 in cost match funding under the Department's Green Grants Program to increase energy efficiency and promote sustainability;
- Develop a sustainability data validation plan to ensure consistency in reported progress towards goals;
- Implement a corporate environmental compliance and reporting system to help facility managers conduct environmental assessments, identify discrepancies, and track corrective actions; and,
- Implement an environmental compliance training program for non-environmental professionals, facility managers, and operations staff using the Commerce Learning Center.

Additionally, because the Department views the requirements of EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, and the pursuit of a robust sustainability policy as central to our agency's core values and mission, every employee is charged with personally supporting sustainability within the Department.

  
Frederick E. Stephens  
Deputy Assistant Secretary for Administration and  
Senior Sustainability Officer

## EXECUTIVE SUMMARY

The U.S. Department of Commerce's (Department) mission is to promote job creation, economic growth, sustainable development and improved standards of living for all Americans by working in partnership with businesses, universities, communities and our nation's workers. The Department touches the daily lives of the American people in many ways, with a wide range of responsibilities in the areas of trade, economic development, technology, entrepreneurship and business development, environmental stewardship, and statistical research and analysis.

The Department has established a vision through its fiscal year (FY) 2014 – 2018 Strategic Plan to ensure that communities and businesses have the necessary information, products, and services to prepare for and thrive in a changing environment. This will be accomplished through:

- Advancement of the understanding and prediction of changes in the environment through world class science and observations;
- Improvement of preparedness, response, and recovery from weather and water events by building a Weather-Ready Nation;
- Strengthening the resiliency of communities and regions by delivering targeted services to build capacity;
- Fostering healthy and sustainable marine resources, habitats, and ecosystems through improved management and partnerships; and,
- Enabling U.S. businesses to adapt and prosper by developing environmental and climate-informed solutions.

The Department's Executive Steering Committee aligns the Department's mission and Strategic Plan with our Strategic Sustainability Plan (SSPP) goals to ensure our facilities are operated in a sustainable manner. Steering Committee Membership include senior leadership from Departmental headquarters and each of the 12 Operating Units.

The Department's Facilities Management Council (FMC) directly oversees quarterly progress towards the Department's real property and sustainability goals. As of June 2014, the FMC is being re-aligned to foster a more collaborative approach to managing the Department's performance against key mandates, including the Department's Office of Management and Budget (OMB) Sustainability/Energy Scorecard goals.

The Deputy Assistant Secretary for Administration serves as the Department's Senior Sustainability Officer (SSO) and is responsible for implementing the Department's Sustainability Program. In coordination with and/or under the direction of the SSO, various offices within the Office of the Secretary assist in SSPP reporting:

- Office of Facilities and Environmental Quality (OFEQ) – OFEQ coordinates the SSPP and manages progress towards the Department's greenhouse gas (GHG) scope 1 and 2 reduction, energy intensity reduction, water intensity reduction, renewable energy, and sustainable buildings goals.
- Office of Acquisitions Management (OAM) – OAM coordinates reporting of the Department's green procurement program.
- Office of the Chief Information Officer (OCIO) – OCIO works with Operating Unit CIOs to implement electronic stewardship and related energy efficiency strategies. The OCIO issues policy and guidance as appropriate to ensure the Department continues to meet its electronic stewardship

goals. The OCIO also issues data calls to track progress towards electronic stewardship goals and the migration of non-core data centers to core data centers. Commerce's continued participation in the government-wide Data Center Consolidation Task Force provides us the opportunity to influence government-wide data center energy efficiency policies.

- Office of Human Resource Management (OHRM) - The Chief Human Capital Officer (CHCO) and other senior agency managers work closely with the Department's Labor-Management Relations Forum to develop a Department-wide Telework Policy to manage the Department's scope 3 greenhouse gas emissions. In addition, the CHCO and other senior agency managers promote the use of teleconferences to minimize travel; emphasize telework as part of COOP (Continuity of Operations Plan) events; support special telework events (e.g., telework awareness weeks), and signs/posters advocating telework in DOC buildings; and support the use of telework during adverse/dangerous weather events.
- Office of Policy and Strategic Planning (OPSP) - OPSP coordinates the development of and updates to the Department's Climate Change Adaptation Strategy. Departmental Operating Units share responsibility for implementing the strategies outlined in Goal 9 of this document, including working with GSA to identify the vulnerabilities of our own facilities to climate change, incorporating resiliency into our grant-making decisions, and providing actionable environmental intelligence to our State and local partners.
- Office of Financial Management (OFM) – OFM manages several Departmental programs affecting key sustainability goals, including business travel, which impacts the Department's scope 3 greenhouse gas emissions, and fleet. In addition, OFM's personal property program tracks and implements policies to promote environmentally friendly disposition of electronic equipment.

### **Sustainability Goal Performance Review**

The Department met or exceeded requirements for several of the federal goals of Executive Order 13514, which lays out seven metrics of sustainability and energy performance. The Office of Management and Budget (OMB) uses a scorecard system to determine how the Federal Agencies are performing on energy and environmental issues. OMB will rate agency metrics as "yellow" (slowed progress towards target) or "red" (off track) when performance requirements are not being met. Specifically, the Department's metrics are as follows:

- **Goal 1. Scope 1&2 Greenhouse Gas (GHG) Emissions:** Scope 1 GHG emissions originate from on-site sources such as natural gas combustion in boilers and vehicle fuel consumption. Scope 2 emissions are indirect emissions associated with consumption of purchased electricity. In 2013 the Department reduced Scope 1 and 2 GHG emissions to 2.3 percent below its 2008 baseline, remaining behind its 2013 target of 8.75 percent below the 2008 baseline. This resulted in a "yellow" score on OMB's sustainability/energy scorecard. The Department continues to strive to achieve the overall reduction goal of 21 percent by 2020.  
**Scope 3 GHG Emissions:** Scope 3 GHG emissions are generated through Federal employee commuting, and to a lesser extent, business travel. In 2013, the Department reduced scope 3 GHG emissions to 7.6 percent below the 2008 baseline. This exceeds the overall target of 6 percent reduction by 2020. The Department is "green" in this category of the OMB scorecard.  
**Energy Intensity:** Energy intensity measures the Department's total energy use per square foot of facility space. The Department increased its energy intensity from 21 percent below the 2003 baseline in 2012 to 17 percent below the 2003 baseline in 2013. Achieving the 30 percent reduction goal by 2015 will be a significant challenge. The Department received a "red" on the OMB scorecard in this category.
- **Goal 2. Green Buildings:** The Department made significant strides toward meeting this goal in 2012. However, significant infrastructure upgrades are required to bring the Department's building stock into compliance with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (GP). In 2013, roughly 7 percent of the Department's

facilities met the GP. The Department remained behind the 2013 target of 11 percent GP-compliant buildings and maintained a “red” score on the OMB scorecard in this category.

- **Goal 3. Fleet Petroleum Use:** The Department has aggressively “smart-sized” its vehicle fleet in recent years, and older inefficient vehicles have been largely replaced with fuel-efficient models. This has resulted in a 21.2 percent reduction in fleet petroleum use from 2003 to 2013, surpassing even the 2015 reduction target of 20 percent. The Department is “green” in this category on the OMB scorecard.
- **Goal 4. Potable Water Intensity:** Similar to energy intensity, this goal tracks the Department’s reduction in potable water used per square foot of facility space. Through innovative measures such as installing low-flow water fixtures and upgrading HVAC cooling tower equipment, the Department has already achieved a 43.4 percent reduction in water intensity compared to 2007, surpassing the 2020 target for this goal and setting the standard for all Federal agencies. The Department is “green” in this category on the OMB scorecard.
- **Goal 8. Renewable Energy:** The Department has relied on a strategy of purchasing renewable energy credits (RECs) to meet its renewable energy goal, although we strive to construct on-site renewable projects and purchase renewable energy directly where cost-effective. In 2013, 6.2 percent of the Department’s electricity was provided by renewable sources. While this exceeded the 4.8 percent sourced in 2012, it fell short of the Federal mandate of 7.5 percent. The Department received a “red” on the OMB scorecard in this category.

**Goal Integration.** The Department strives to incorporate its SSPP goals into agency-wide planning and budgeting, as well as integrate the goals with other federal initiatives. A summary of these goal integration strategies is presented below:

- **Goals 1 & 4. Electricity Procurement:** To reduce GHG emissions and increase the use of renewable energy, several Operating Units within the Department now annually procure a set percentage of their electricity consumption through either green energy purchases or RECs.
- **Goal 2. Building Procurement & Renovation:** As part of our building portfolio management process, the Department and its Operating Units now carefully evaluate all planned renovations and new buildings for opportunities to align with or adopt the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings.
- **All Goals:** In accordance with the December 2, 2011, Presidential Memorandum on increasing the energy efficiency of Federal facilities through performance-based contracting and the May 9, 2014 expansion of that initiative, the Department is pursuing several energy savings performance contracts. These contracts will reduce energy and water use and increase renewable energy at our largest and most energy intensive facilities.

**Goal Evaluation.** Annual progress toward SSPP goal achievement is tracked at both the Department level and, where appropriate, the individual Operating Unit level. Progress is rolled up into the annual Federal Energy Management Program (FEMP) sustainability-reporting portal. Our SSPP goal progress reporting structure is described below.

- **Five-Year Plans:** Each Operating Unit has developed and annually updates a five-year plan that 1) captures all planned projects and activities that may impact progress towards SSPP goals, and 2) quantifies the projected impact. Coupled with our internal performance metric-based tracking tools, these five-year plans allow the Department to project anticipated progress toward SSPP goals.
- **Sustainability Dashboard:** This web-based internal tool tracks progress on all the Department’s major sustainability goals, including: Electronic Stewardship, Energy Intensity, Fleet Petroleum, Scope 1 & 2 GHG Emissions, Scope 3 GHG Emissions, Renewable Energy, Sustainable Acquisition, Sustainable Buildings, and Water Intensity. Along with displaying

current progress broken down by Operating Unit, this tool also tracks leading indicators on a quarterly basis to assist management in forecasting current fiscal year progress.

- **FEMP Sustainability Portals:** In addition to the consolidated FEMP Sustainability Portal, which the Department submits to the U.S. Department of Energy annually, an internal portal has been created for each Operating Unit to track their individual progress.

**Successes.** In the past year, the Department and its Operating Units achieved a number of programmatic successes that have contributed to achieving the goals of the Department's SSPP. These successes are highlighted by Operating Unit in the following examples:

National Institute of Standards and Technology (NIST):

- NIST Child Care Center Implementation Team developed a LEED Gold certified new child care facility that retains 100 percent of storm water on site, reduces potable water consumption by 24 percent and energy consumption by 30 percent, incorporated 25 percent recycled building materials into facility construction, and diverted 85 percent of construction debris from the landfill.
- NIST Boulder Engineering Maintenance and Support Services Team implemented multiple energy savings projects including lighting and water fixture upgrades that will save approximately \$60,000 per year. The team demonstrated seamless process flow and efficiency while simultaneously installing multiple energy and cost savings technologies and products.
- NIST Central Computing Facility Team implemented multiple energy efficiency upgrades to the Gaithersburg campus central computing facility which increased their uninterruptable power supply efficiency to 90 percent and reduced lighting energy consumption by 50 percent.
- NIST Manufacturing Extension Partnership Sustainability Team installed motion sensor lighting units in the office spaces on the NIST Gaithersburg campus that will reduce lighting energy consumption by up to 40 percent. The success of this project will serve as a model for future energy reducing efforts across the entire NIST campus.
- NIST Net Zero Energy Team demonstrated outstanding organizational achievement in design and construction of a net-zero energy residential test facility. The facility attains a net-zero energy consumption level and serves as a test bed for the nation in the development of methods and metrics for emerging energy efficient technologies.
- NIST Office of Facility Property Management in Partnership with the Engineering Laboratory installed solar arrays producing a total of 595 kilowatts of electricity, saving 735,000 kilowatt hours, 376 tons of carbon dioxide emissions, and over \$80,000 annually. These solar arrays now help the NIST Gaithersburg campus meet their total electricity needs.

National Oceanic and Atmospheric Administration (NOAA):

- NOAA National Marine Fisheries Service promoted bike commuting by developing a Bike Bucks program that awards frequent bikers with coupons to bike shops and hosting a post-event brunch for participants in the annual Bike to Work Day. This program has eliminated 7.4 tons of pollutants from the atmosphere that would otherwise be attributable to employee commuting.
- NOAA National Marine Fisheries Service developed a large scale electronics recycling initiative for the entire Regional Office in accordance with the Federal Electronics Challenge requirements. This effort resulted in the recycling of over 14,000 pounds of electronics.

- NOAA National Geodetic Survey established and managed a community supported agriculture delivery program that provides fresh, local, fruits and vegetables to NOAA employees, reduces the environmental cost associated with transporting food to consumers, and supports small local farms.
- NOAA Office of the Chief Administrative Officer Project Planning and Management Division restored and re-purposed a historic residence building at the Ocean Climate Center, Gulf of the Farallones, National Marine Sanctuary to incorporate sustainable and green principles that could be emulated for future NOAA projects, all while preserving the historic integrity of the interior and exterior facades.
- NOAA National Ocean Service Office of Coast Survey demonstrated vision, determination, and expertise in creating a searchable, online database of 35,000 electronic images of nautical charts, topographical maps, and sketches, preserving our historical resources and encouraging their use for environmental protection and restoration.
- NOAA Auke Bay Laboratories Facilities National Marine Fisheries Service Alaska Fisheries Science Center installed a seawater heat recovery system that eliminated the use of 120,000 gallons of oil per year, reduced energy costs by \$360,000 per year, reduced the facility's total carbon footprint to only the emissions from its service vehicles, and produces enough energy to heat 60 houses. This successful system can now be used as an energy recovery model at other facilities throughout the United States.

#### U.S. Census Bureau:

- Census Administrative and Customer Services Division developed a strategy to reduce fleet-related greenhouse gas emissions by 46 percent through reduced shuttle hours, upgrading to more fuel-efficient vehicles, and partnering with Andrews Air Force Base to use alternative fuel in their vehicles.

#### National Telecommunications and Information Administration (NTIA):

- NTIA Information Technology Division excessed over 150 pieces of inefficient equipment, reducing the storage space required from 29 to 12 computer racks, increasing the percentage of servers virtualized from 6 percent to over 75 percent, reducing electrical consumption by 63 percent, and saving over \$30,000 per year.

#### International Trade Administration (ITA):

- ITA Office of Energy and Environmental Industries demonstrated extraordinary leadership in conceiving, developing, and advancing the Environmental Technologies Exports Initiative, a collaboration between Commerce and the U.S. Environmental Protection Agency that identifies key market opportunities and environmental priorities to increase U.S. exports, provide U.S. environmental firms with additional tools to increase foreign sales and contracts, and coordinate public-private sector responses to enable U.S. firms to compete abroad successfully.

#### Office of the Secretary (OS):

- The DOC Green Acquisition Team increased employee awareness of bio-based purchasing within the Department.
- OCIO Web Solution Team developed a user-friendly web-enabled form for Departmental Annual Energy and Environmental award nominations that directly resulted in a 6 fold increase

in the number of award nominations received, improved the quality of submissions, eliminated the need for paper in the awards process, and reduced the time and effort required to submit an award nomination by 60 percent.

U.S. Patent and Trademark Office (USPTO):

- USPTO Office of the Chief Administrative Officer Telework Team implemented an aggressive program that in fiscal year 2012 alone cumulatively saved 6,247 employees from driving over 51 million miles, avoided nearly \$6 million in fuel costs, and avoided 30,000 tons of greenhouse gas emissions.
- USPTO Office of Administrative Services achieved a 86 percent waste diversion rate in fiscal year 2013, recycling approximately 3,700 tons of waste, and for the third consecutive year exceeded the Executive Order 13514 goal to divert 50 percent of all solid waste from the landfill.

Economic Development Administration (EDA):

- EDA Performance and National Program Office expanded the green products, processes, and buildings focus of their Environmentally Sustainable Development investment priority to include “green places,” emphasizing the importance of smart land use choices in economic development decisions by incorporating environmental quality as a key factor.

**Challenges.** The Department and its Operating Units face a number of challenges that preclude and/or impair SSPP goal achievement. These include the following:

- **Goal 1. Rising Facility Gross Square Footage from Baseline:** Scope 1 and 2 GHG emissions have grown proportionally to the Department’s growth in facility square footage where utilities are paid directly. Strategies are being implemented to focus on the demolition of older inefficient facilities and to lease or build any new facilities as energy efficient and sustainable as possible.
- **Goal 1. Energy Intensity:**
  - The alignment of energy-saving goals balanced with new technology initiatives can be a challenge. Telework programs require computers in the data centers even though people are working from home, increasing equipment in the office space and increasing power usage.
  - Some Operating Units are experiencing the effects of increased space utilization which reduces square footage but, in turn, increases energy intensity.
- **Goal 1. Scope 3, Rising Employee Population from Baseline:** As the Department has grown in employee population since the 2008 baseline year, reducing Scope 3 emissions is more difficult. The reduction of maximum allowable transit benefit subsidies has also reduced the growth of mass transit utilization. The Department continues to encourage employees to use strategies such as telework, alternative work schedules, and carpools.
- **Goal 6. Sustainable Acquisition:** Tracking and monitoring sustainable acquisition is restricted by the limitations of current Federally available systems such as the Federal Procurement Data System. As these systems improve, the Department will gain a greater insight into its green purchases.
- **Goals 1, 4, and 8. Performance Contract Procurement & Resources:**
  - Commerce’s lack of available acquisition resources and expertise with alternatively financed, performance-based contracts has presented a challenge to effectively process and execute these contracts. Commerce has enlisted expertise from the U.S. Department

of Justice, National Renewable Energy Laboratory, and others to help navigate the complexities of alternatively financed projects.

- Additionally, since many Commerce facilities are relatively small in size and geographically distributed, executing a bundled energy savings performance contract (ESPC) project has presented challenges, including coordinating logistics across many sites and personnel as well as coordinating projects across multiple line offices and funding streams. Additionally, ESPCs with multiple small sites can have higher development costs, which can impact the cost-effectiveness of energy conservation measures (ECMs) leading to smaller projects containing ECMs with shorter payback periods.
- Performance-based contract terms are typically 10-20 years in length and extend beyond the budget horizon of Commerce's management team; this has presented challenges both in the initial procurement phase as well as with the long-term commitment to the project and contractor, particularly for facilities whose long-term mission (and funding) is fluid.
- **All Goals: Data Integrity - Lack of Automated Systems:** Collecting, monitoring, and reporting energy and performance data for the Department has been done largely through data calls and manual collection methods. This can create challenges in maintaining data completeness, quality, and consistency, especially for time-intensive data collection processes or during changes in key personnel where "institutional knowledge" is lost.
- **All Goals: Administrative Burden:** Often, the assignment as a "facility manager" is as a collateral responsibility to an individual with expertise in accounting, scientific research, or cost analysis. As the requirement to collect and report more and more facility-related data expands, many of these individuals become overwhelmed and are unable to keep up relative to their primary responsibilities.

**Lessons Learned.** Through dealing with both the successes and challenges of SSPP implementation and execution, a number of lessons learned have been captured and will be applied in future activities and initiatives. These include the following:

- **Goals 1, 4, and 8: Engage Stakeholders Early in Performance Contract Procurement:** ESPC projects can have a significant impact on existing operations and maintenance plans, processes, and systems; accordingly, facilities engineering and management personnel should be consulted early in an ESPC project. For one potential project, the Department project acquisition team consulted facility staff too late in the process regarding ECMs. As a result, the ECMs ended up not being feasible due to existing operations and maintenance plans, leading to a cancellation of a project. For all current and future projects, the Department will work to ensure that all relevant stakeholders, including facilities personnel, are fully engaged throughout the life of the project, including project inception.
- **All goals: Simplify data calls and collection methods:** Data calls and data collection can be time consuming, confusing, and oftentimes seemingly repetitive. The Department and its Operating Units have found that these data calls can result in significant manual data collection time, which risks compromising data completeness, quality, and consistency. To minimize these risks and more efficiently use resources, the Department is beginning to utilize more automated processes and tools, including ENERGY STAR® Portfolio Manager and the GSA Carbon Footprint Tool.

**Planned Actions.** A number of innovative initiatives are being implemented across the Department and its Operating Units over the course of the next year to continue efforts in meeting sustainability goals and to comply with relevant environmental and energy statutes, regulations, and Executive Orders. These include:

- **Goal 1. GHG Inventory:** As part of the FEMP GHG reporting process, the Department will update its GHG inventory to track progress toward goals and identify any further areas of opportunity and focus. The Department will also begin transitioning its data collection and reporting processes for subsequent years to ENERGY STAR<sup>®</sup> Portfolio Manager and the GSA Carbon Footprint Tool.
- **Goal 3. Fleet:** In an effort to minimize fuel cost, the Department will replace five vehicles with hybrid vehicles in metropolitan areas where heavy traffic or traffic congestion is prevalent.
- **Goals 1, 4, and 8. Performance Contracts:** As part of the ESPC procurement process, NIST, NOAA, and Census will award ESPC/utility energy services contracts (UESC) contracts, pending the contractor's execution of the investment grade audit and receipt of a fair and reasonable final ESPC proposal. To ensure success, the Department, in coordination with the Operating Units, has developed a Risk Management Plan, and is now developing a Life of Contract Plan for the administration of the contracts during the performance period.
- **Goals 1, 4 and 8:** The Department will award up to \$300,000 in cost-match funding under the Department's Green Grants Program, which will go toward Operating Unit projects and initiatives that increase energy efficiency and promote sustainability.
- **Goal 5. Pollution Prevention:** The Department will maintain a "Green Store" at Department headquarters that will provide employees with opportunities to efficiently and safely recycle excess office supplies.
- **Goal 5. Pollution Prevention:** The Department will implement an environmental compliance training program for non-environmental professionals, facility managers, and operations staff using the Department's online Commerce Learning Center.
- **Goal 6 Green Acquisition:** Through the Department's Independent Verification and Validation of Federal Procurement Data, the Department will deploy any corrective actions necessary to address identified barriers to increasing sustainable procurements.
- **Goal 8. Renewable Energy:** Largely through the purchase of RECs, the Department will strive to derive 7.5 percent of its electricity comes from renewable energy. In addition, the Department will position itself to increase its portfolio of on-site renewable generation, including through the use of alternative financing vehicles, where possible.
- **All Goals:** The Department will continue to provide a corporate environmental compliance and reporting system to help facility managers effectively conduct environmental assessments, identify discrepancies, and track corrective actions.
- **All Goals:** The Department will empower employees to approach energy-conservation challenges creatively through energy working groups, employee "Green Teams," and energy-awareness campaigns.
- **All Goals:** The Department will build upon its relationships with other federal agencies, including the U.S. Departments of Energy and Justice to augment limited resources and take advantage of expertise across the Federal government.

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## Evaluation of Previous Year's Strategies

Goal	(A) Strategy	(B) Did you implement this strategy? Yes/No	(C) Was the strategy successful for you? Yes/No	(D) Will you use this strategy again next year? (Please explain in 1-2 sentences)
<b>Goal 1: Scope 1&amp;2 GHG Reductions</b>	Use the FEMP GHG emission report to identify/target high emission categories and implement specific actions to resolve high emission areas identified	Yes	Yes	Yes. The report highlighted electricity, natural gas, and fleet fuel use as high emissions categories. Performance-based energy efficiency contracts are and will continue to be utilized to focus on the identified facility related categories.
	Ensure that all major renovations and new building designs are 30% more efficient than applicable code	Yes	Yes	Yes. The Department's Energy and Environmental Management Manual, Chapter 27, Energy Conservation, requires that all major renovations and new building designs are 30% more efficient than applicable code. Operating Units are required to list all major renovation and new construction projects in their five year project implementation plans.

<b>Goal 1: Scope 1&amp;2 GHG Reductions</b>	Implement in EISA 432 covered facilities all lifecycle cost effective ECMs identified	Yes	Yes	Yes. The Department is required to input all “covered facility” comprehensive energy and water audits into FEMP’s compliance tracking system (CTS). Audits list all ECMs that were considered. A separate section of CTS allows Operating Units to input implemented projects.
	Reduce on-site fossil-fuel consumption by installing more efficient boilers, generators, furnaces, etc. and/or use renewable fuels	Yes	Yes	Yes. The Department has entered into an energy services agreement with the Department of Justice/Federal Prison Industries (DOJ/FPI). This agreement will allow the Department to pursue performance-based energy efficiency and renewable energy contracts without the need for upfront funding. A Green Grants program has been established to cost match proposed Operating Units energy efficiency and renewable energy projects through the Department’s recycling account.

<b>Goal 1: Scope 1&amp;2 GHG Reductions</b>	Reduce grid-supplied electricity consumption by improving/upgrading motors, boilers, HVAC, chillers, compressors, lighting, etc.	Yes	Yes	<p>Yes. The Department has entered into an energy services agreement with the DOJ-FPI. This agreement will allow the Department to pursue performance-based energy efficiency and renewable energy contracts without the need for upfront funding.</p> <p>A Green Grants program has been established to cost match proposed Operating Units energy efficiency and renewable energy projects through the Department's recycling fund account.</p>
	Employ operations and management best practices for energy consuming and emission generating equipment	No	N/A	No. Due to limited resources and numerous priorities, this strategy will be considered as a focus area at a future date in time.
	Install building utility meters and benchmark performance to track energy and continuously optimize performance	Yes	No	Yes. Due to limited resources and numerous priorities, this strategy has only been partially successful.
<b>Goal 1: Scope 3 GHG Reductions</b>	Reduce employee business ground travel	No	N/A	No, due to limited resources and numerous priorities, this strategy will be considered as a focus area at a future date in time.
	Reduce employee business air travel	Yes	Yes	Yes. The Department will reduce air travel

<b>Goal 1: Scope 3 GHG Reductions</b>				costs and monitor utilizing GSA Travel MIS and ADTRAV Rezintel System.
	Develop and deploy employee commuter reduction plan	No	N/A	No. Due to limited resources and numerous priorities, this strategy will be considered as a focus area at a future date in time.
	Use employee commuting survey to identify opportunities and strategies for reducing commuter emissions	Yes	Yes	Yes. The Department utilizes GSA's Carbon Footprint Tool to conduct an annual employee commuting survey. The tool provides data results by Operating Unit that can then be sorted, by year, to determine a trend analysis.
	Increase number of employees eligible for telework and/or the total number of days teleworked	Yes	Yes	Yes. Continue to market the positive impacts of telework for the agency, employee, and the environment through a variety of communication methods.
	Develop and implement bicycle commuter program	Yes	Yes	No. Operating Unit programs exist where practical. Due to limited resources and numerous priorities, this strategy may be considered as a focus area at a future date in time.
	Provide bicycle commuting infrastructure	Yes	Yes	No. Bicycle infrastructure exists and is being utilized throughout the Department. Additional

<b>Goal 1: Scope 3 GHG Reductions</b>				infrastructure is not a top priority due to limited resources but may be considered at a future date.
<b>Goal 2: Sustainable Buildings</b>	Incorporate green building specifications into all new construction and major renovation projects	Yes	Yes	Yes. New construction/major modernizations are subject to statutes, EOs, as defined in the Department's Energy and Environmental Manual, Climate Adaptation Plan, High Performance and Sustainable Buildings Handbook and the Strategic Sustainability Performance Plan. The Target for the Department is LEED Gold for all new construction.
<b>Goal 2: Sustainable Buildings</b>	Redesign or lease interior space to reduce energy use by daylighting, space optimization, sensors/control system installation, etc.	Yes	Yes	Yes. The Department is in the process of updating the Real Property Management Manual and has kept the incorporation of:  <i>Federal Leadership in High Performance and Sustainable Buildings MOU</i>  <i>Energy Policy Act of 2005</i>  <i>Energy Independence and Security Act of 2007</i>  <i>EO 13423, Strengthening Federal</i>

<b>Goal 2: Sustainable Buildings</b>				<p><i>Environmental, Energy, and Transportation Management (implementing instructions and guidance)</i></p> <p><i>EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance</i></p> <p><i>Presidential Memorandum - Implementation of Energy Savings Projects and Performance-Based Contracting for Energy Savings</i></p> <p><i>Department Administrative Order 217-16 - Energy and Environmental Management</i></p> <p><i>Strategic Sustainability Performance Plan</i></p> <p><i>High Performance and Sustainable Buildings Handbook</i></p> <p><i>Climate Change Adaptation Strategy</i></p> <p><i>Implementing Instructions – Sustainable Locations for Federal Facilities</i></p>
	Deploy CEQ's Implementing Instructions – Sustainable	Yes	Yes	Yes. Section 8.2.3.2 of the Department's

<b>Goal 2: Sustainable Buildings</b>	Locations for Federal Facilities			current Real Property Management Manual makes it part of the Department Acquisition strategy to “Incorporate Principles for Sustainable Federal Location Decisions into applicable agency business practices and agency SSPP”. The new manual will retain this strategy.
	Include in every construction contract all applicable sustainable acquisition requirements for recycled, biobased, energy efficient, and environmentally preferable products	Yes	Yes	Yes. Alternative Finance projects have several sustainability goals as base requirements. Additionally, where feasible (relative to cost, design, and agreement with mission), sustainably design is being given special consideration in normal capital investments. Green Grant funding also allows exclusive planning/resources for sustainable design.
	Develop own system of assessing, addressing, documenting and certifying Existing Buildings as meeting the Guiding Principles	Yes	Yes	Yes. The Department encourages the use of PM GP Checklist. Mixed results Some Operating Units will maintain current system while others are reevaluating system options.

<b>Goal 2: Sustainable Buildings</b>	Develop and deploy energy and sustainability training for all facility and energy managers.	Yes	Yes	Yes. The Commerce Learning Center offers all employees, at no cost, an Environmental Stewardship Briefing for better understanding EOs 13423 and 13514. Each section of the briefing includes a quiz to evaluate comprehension. The Learning Center also offers the USDA's Bio-preferred Certification Program (currently suspended due to funding shortfall). The Department's Office of Sustainable Energy and Environmental Programs also offers a training video on completing the EPA's Portfolio Manager Sustainable Building checklist. Lastly, the Department, through an MOU with NREL, is coordinating with Operating Units to provide additional training and support.
	Incorporate sustainable building requirements into energy efficient facilities performance based contracting initiative.	Yes	Yes	The Department has incorporated sustainable building requirements into an interagency agreement with the

<p><b>Goal 2: Sustainable Buildings</b></p>				<p>Department of Justice/Federal Prison Industries for energy services. As applicable, projects implemented through the agreement will address sustainable buildings requirements.</p>
<p><b>Goal 3: Fleet Management</b></p>	<p>Optimize/Right-size the composition of the fleet (e.g., reduce vehicle size, eliminate underutilized vehicles, acquire and locate vehicles to match local fuel infrastructure)</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes. All replacement vehicles will be reviewed by Departmental Fleet Manager to determine previous vehicle utilization and vehicle replacement based on mission needs and DOC vehicle allocation methodology (VAM). New vehicles will also be reviewed for VAM and mission requirements. All replacement and new light duty vehicles are required to be AF or low greenhouse gas (GHG) vehicles.</p>
	<p>Reduce miles traveled (e.g., share vehicles, improve routing with telematics, eliminate trips, improve scheduling, use shuttles, etc.)</p>	<p>No</p>	<p>No</p>	<p>No. Budget constraints limit our ability to use telematics. Census has reduced its shuttle service from four trips to two per day because of ridership. Census shuttle operation now coincides with courier services between Census (Suitland, MD) and DOC headquarters.</p>

<b>Goal 3: Fleet Management</b>				National Institute of Standards and Technology shuttle employees to and from Metro.
	Acquire only highly fuel-efficient, low greenhouse gas-emitting vehicles and alternative fuel vehicles (AFVs)	Yes	Yes	Yes. Continue to replace light duty vehicles with AFV or low GHG vehicles. Replacing vehicles in areas where alternative fuel (AF) is not available with low GHG vehicles.
	Increase utilization of alternative fuel in dual-fuel vehicles	Yes	Yes	Yes. Monitor alternative fuel consumption through Department of Commerce (DOC) Fleet Solution (FMIS) and General Services Administration (GSA) Information Management System (IMS) and educate Operating Unit Fleet Managers on policies and procedures.
	Use a Fleet Management Information System to track fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles	Yes	Yes	Yes. Continue to improve the interfaces and data migration into the Fleet Management Information System (FMIS) for owned and commercial leased vehicles. Continue to use the GSA IMS to report GSA fuel consumption into FMIS. Train Fleet Managers on how to use the FMIS more effectively.
	Increase GSA leased vehicles and decrease agency-owned fleet vehicles, when cost effective	Yes	Yes	Yes. Continue to replace owned vehicles that have reached or out lived life expectancy with GSA leased vehicles

<b>Goal 3: Fleet Management</b>				where possible, primarily medium and heavy duty vehicles.
<b>Goal 4: Water Use Efficiency &amp; Management</b>	Purchase and install water efficient technologies (e.g., Waterwise, low-flow water fixtures and aeration devices)	Yes	Yes	Yes. Major renovations, repairs, and performance-based contracting projects all give preference to water efficient technologies.
	Develop and deploy operational controls for leak detection including a distribution system audit, leak detection, and repair programs	Yes	No	Yes. Partially successful. Operating Units must be able to implement these through a performance-based contracted due to limited resources. This is a challenge for smaller facilities.
	Minimize outdoor water use and use alternative water sources as much as possible	Yes	No	Yes. Partially successful. Minimization and alternative water use are and will continue to be encouraged. Limited resources have lowered the priority of these efforts for some Operating Units.
	Design and deploy water closed-loop, capture, recharge, and/or reclamation systems	Yes	No	Yes. Partially successful. Smaller facilities have struggled to cost effectively implement this strategy.
	Install advanced meters to measure and monitor (1) potable and (2) industrial, landscaping, and agricultural water use	No	N/A	No. The Department continues to focus limited resources on installation of electricity and potable water meters.

<p><b>Goal 4: Water Use Efficiency &amp; Management</b></p>	<p>Develop and deploy water conservation training for field staff.</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes. The Department offers quarterly sustainability to Operating Units on a variety of topics, including water efficiency. Staff are also encouraged to utilize FEMP free training materials, specifically First Thursday seminars.</p>
<p><b>Goal 5: Pollution Prevention &amp; Waste Reduction</b></p>	<p>Eliminate, reduce, or recover refrigerants and other fugitive emissions</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes. The Department will utilize GSA's Carbon Footprint and FEMP's GHG emissions report to track fugitive emissions such as the release of refrigerants from air Conditioning units as well as other fugitive emissions.</p>
	<p>Reduce waste generation through elimination, source reduction, and recycling</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes. Programs focused on recycling of toner cartridges and excess office supplies will report cost avoidance on a quarterly basis starting in FY13.</p> <p>The Department in FY13 saved an estimated 10 tons worth in excess of \$150,000, in recycling of toner cartridges and excess office supplies.</p>
	<p>Implement integrated pest management and improved landscape management practices to reduce and eliminate the</p>	<p>Yes</p>	<p>Yes</p>	<p>Yes. Applicable facilities will review and update their Integrated Pest Management Plans</p>

<b>Goal 5: Pollution Prevention &amp; Waste Reduction</b>	use of toxic and hazardous chemicals/materials			(IPMP) every five years, if significant changes have occurred in laws, instructions, technology or the facility's pest management program..
	Establish a tracking and reporting system for construction and demolition debris elimination	No	N/A	No. The Department does not anticipate substantial construction and demolition in the next few years.
	Develop/revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities	Yes	Yes	The Department will use ECARS to track all facility self-assessments as well as discrepancies and corrective action plans. The Department ensures that all facilities and Operating Units meet all Emergency Planning and Community Right-to-Know Act Section 302, 303, 304, 311, 312 and 313 reporting requirements and that all non-compliance issues are managed in accordance with such.  The DASHER will be used to track sustainable acquisition requirements. GHG inventory data will be used for tracking

<b>Goal 5: Pollution Prevention &amp; Waste Reduction</b>				source reduction goals.
<b>Goal 6: Sustainable Acquisition</b>	Update and deploy agency procurement policies and programs to ensure that federally-mandated designated sustainable products are included in all relevant procurements and services	Yes	Yes	Yes. Update and deploy Commerce policies on Sustainable Acquisition to properly reflect the Federal Acquisition Regulation.
	Deploy corrective actions to address identified barriers to increasing sustainable procurements with special emphasis on biobased purchasing	Yes	Yes	Yes. Conduct an analysis of the Sustainable Acquisition Program as part of the Independent Validation and Verification Process.
	Include biobased and other FAR sustainability clauses in all applicable construction and other relevant service contracts	Yes	Yes	Yes. Include biobased and other FAR sustainability clauses in all applicable contract actions.
	Review and update agency specifications to include and encourage biobased and other designated green products to enable meeting sustainable acquisition goals	N/A	N/A	N/A
	Use Federal Strategic Sourcing Initiatives, such as Blanket Purchase Agreements (BPAs) for office products and imaging equipment, which include sustainable acquisition requirements	Yes	Yes	Yes. Actively promote the use of Federal Strategic Sourcing Initiatives (FSSI) for office supplies.
	Report on sustainability compliance in contractor performance reviews	No	N/A	No
<b>Goal 7: Electronic Stewardship &amp; Data Centers</b>	Identify agency “Core” and “Non-Core” Data	Yes	Yes	Yes. We will continue to monitor and update identification of core and non-core data centers, to include

<b>Goal 7: Electronic Stewardship &amp; Data Centers</b>				identification of non-core sub-category data centers. The sub-category data centers are those that can't be migrated at this time.
	Consolidate 40% of agency non-core data centers	Yes	Yes	Yes. We will continue to pursue, with the Operating Units, the migration of non-core data centers to core centers. The exception will be the migration of the non-core sub-category data centers, as identified by the Operating Units.
	Optimize agency Core Data Centers across total cost of ownership metrics	Yes	Yes	Yes. We will continue to monitor the strategy to improve core data centers in areas such as energy efficiency and virtualization. Identify core data centers capable of optimization.
	Ensure that power management, duplex printing, and other energy efficiency or environmentally preferable options and features are enabled on all eligible electronics and monitor compliance	Yes	Yes	Yes. We will provide policy and guidance on energy efficiency options on all eligible It-related electronic devices, and perform data calls to ensure policy and guidance are adhered to.
	Update and deploy policies to use environmentally sound practices for disposition of all agency excess or surplus electronic products, including use of certified eSteward and/or R2 electronic recyclers, and monitor	No	Yes	N/A. Enhance the internal screening process to allow the Department to capture cost savings/cost avoidance by reutilizing excess personal property prior to making a

<b>Goal 7: Electronic Stewardship &amp; Data Centers</b>	compliance			purchase.
	Ensure acquisition of 95% EPEAT registered and 100% of ENERGY STAR qualified and FEMP designated electronic office products	Yes	Yes	Yes. The Department of Commerce has tracked EPEAT designated products in the past and will review the capabilities of current systems to monitor ENERGY STAR and FEMP designated products.
<b>Goal 8: Renewable Energy</b>	Purchase renewable energy directly or through Renewable Energy Credits (RECs)	Yes	No	Yes. While REC purchase is utilized by most agencies within the Department and is the least complicated option to meet renewable energy mandates, they are not supported by all agencies within the Department. Direct purchase renewable energy is the preferred option and will be pursued by those agencies who do not support RECs, however these agreements are much more complicated and must be initiated at the start of the fiscal year.
	Install onsite renewable energy on federal sites	Yes.	No	Yes. Limited resources has slowed progress. The Department continues to promote its cost-match Green Grants program to encourage project implementation.
	Lease land for renewable energy infrastructure	No	No	No. This option is not available to the Department of Commerce.
	Develop biomass	No	N/A	No. Previous NREL

<b>Goal 8: Renewable Energy</b>	capacity for energy generation			audits throughout the Department have not ranked biomass as the most favorable renewable option. Due to limited resources and numerous priorities, this strategy will be considered as opportunities present themselves through performance-based contracting or green grant submissions.
	Utilize performance contracting methodologies for implementing ECMs and increasing renewable energy	Yes	No	Yes. Conflicting requirements regarding capitol asset ownership equipment have prevented successful renewable ECM implementation.
	Work with other agencies to create volume discount incentives for increased renewable energy purchases	Yes	No	Yes. GSA and DLA appear to be pursuing group agreements, however, barriers continue to exist.
<b>Goal 9: Climate Change Resilience</b>	Ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments, and private stakeholders	Yes	Yes	Yes. NOAA will continue to coordinate climate and related ecological research and services partnerships within the Department and with Department partners to better understand how climate variability and change will affect communities, cultural resources, and ecological processes.
	Update agency emergency response procedures and protocols to account for projected climate change, including extreme weather events	Yes	Yes	Yes. The Department's Continuity of Operations Plan (COOP) is updated annually and every

<b>Goal 9: Climate Change Resilience</b>				Operating Unit within the Department is required to participate in COOP exercises and update their COOP.
	Ensure workforce protocols and policies reflect projected human health and safety impacts of climate change	Yes	Yes	Yes. Telework policy requires employees to telework when their office is closed due to hazardous weather, and provides employees with the option of teleworking when OPM provides for unscheduled telework in their Operating Status.
	Update agency external programs and policies (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change	Yes	Yes	Yes. Leveraging the Comprehensive Economic Development Strategy Content Guidelines and its leadership of the Economic Recovery Support Function of the National Disaster Recovery Framework (NDRF), the Economic Development Administration (EDA) will encourage communities and regions to incorporate resiliency (including resiliency to the effects of climate change) into their economic development planning and implementation decisions.
	Ensure agency principals demonstrate commitment to adaptation efforts	Yes	Yes	No

<b>Goal 9: Climate Change Resilience</b>	through internal communications and policies			
	Identify vulnerable communities that are served by agency mission and are potentially impacted by climate change and identify measures to address those vulnerabilities where possible	Yes	Yes	No
	Ensure that agency climate adaptation and resilience policies and programs reflect best available current climate change science, updated as necessary	Yes	Yes	Yes. The Department of Commerce is updating its Climate Change Adaptation Strategy per E.O. 13653.
	Design and construct new or modify/manage existing agency facilities and/or infrastructure to account for the potential impacts of projected climate change	Yes	Yes	Yes. The Department will incorporate the criteria GSA develops for, “assessing the criticality of facilities to mission and thereby assess vulnerability to climate changes risks over time” into its vulnerability screening analyses.
	Incorporate climate preparedness and resilience into planning and implementation guidelines for agency-implemented projects	Yes	Yes	Yes. NOAA will provide “Roadmap for Adapting to Coastal Risk,” “Climate Adaptation for Coastal Communities,” “Coastal Inundation Mapping,” and “Introducing Green Infrastructure for Coastal Resilience” trainings.

**Table 1: Agency Size & Scope**

<b>Agency Size and Scope</b>	<b>FY 2012</b>	<b>FY 2013</b>
Total Number of Employees as Reported in the President's Budget	45,277	46,314
Total Acres of Land Managed	22,176	19,580
Total Number of Buildings Owned <sup>1</sup>	563	529
Total Number of Buildings Leased (GSA and Non-GSA Lease)	420	400
Total Building Gross Square Feet (GSF)	16,203,056	15,343,783
Operates in Number of Locations Throughout U.S.	3,505	3,351
Operates in Number of Locations Outside of U.S.	127	127
Total Number of Fleet Vehicles Owned	671	601
Total Number of Fleet Vehicles Leased	1,429	1,348
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	63	30
Total Amount Contracts Awarded as Reported in FPDS (\$Millions)	2.357	2.304

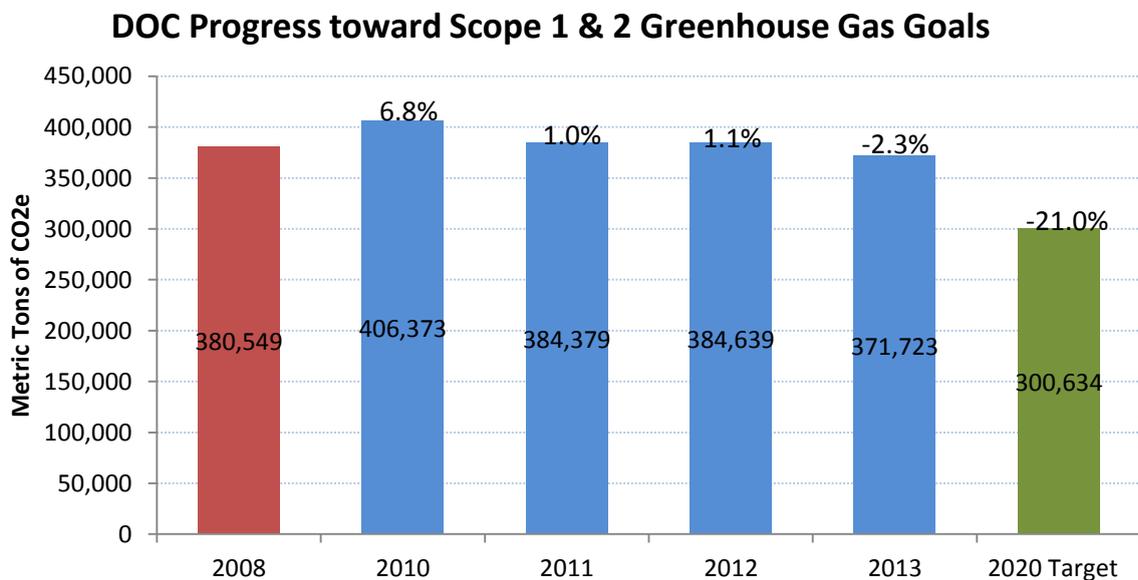
<sup>1</sup> Building information should be consistent with FY 2012 and FY 2013 data submitted into the Federal Real Property Profile (FRPP)s

## GOAL 1: GREENHOUSE GAS (GHG) REDUCTION

### Agency Progress toward Scope 1 & 2 GHG Goal

E.O. 13514 requires each agency establish a Scope 1 & 2 GHG emission reduction target to be achieved by FY 2020. The red bar represents the agency's FY 2008 baseline. The green bar represents the FY 2020 target reduction. The blue bars represent annual agency progress towards achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2008 baseline. A negative percentage value indicates that the emissions have increased compared to the 2008 baseline.

**Figure 1-1**



**Table 1-1: Goal 1 Strategies – Scope 1 & 2 GHG Reductions**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b>  (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Use the FEMP GHG emission report to identify/target high emission categories and implement specific actions to resolve high emission areas identified.	Yes	Analyze FEMP GHG emissions report to determine significant emission categories. Utilize five year project implementation plans to focus efforts on most significant GHG categories.	Review Operating Unit FEMP GHG emissions report submissions and five year project implementation plan updates by January 2015.
Ensure that all major renovations and new building designs are 30% more efficient than applicable code.	Yes	The Department's Energy and Environmental Management Manual, Chapter 27, Energy Conservation, requires that all major renovations and new building designs are 30% more efficient than applicable code. Operating Units are required to list all major renovation and new construction projects in their five year project implementation plans.	Review Operating Unit five year project implementation plan updates by December 2014 to ensure that efficiency requirements are being met.

<p>Implement in EISA 432 covered facilities all lifecycle cost effective ECMs identified.</p>	<p>Yes</p>	<p>The Department is required to input all “covered facility” comprehensive energy and water audits into FEMP’s compliance tracking system (CTS). Audits list all ECMs that were considered. A separate section of CTS allows Operating Units to input implemented projects.</p>	<p>Review FEMP’s Compliance Tracking System to determine percentage of lifecycle cost effective ECM implementation by June 2015.</p>
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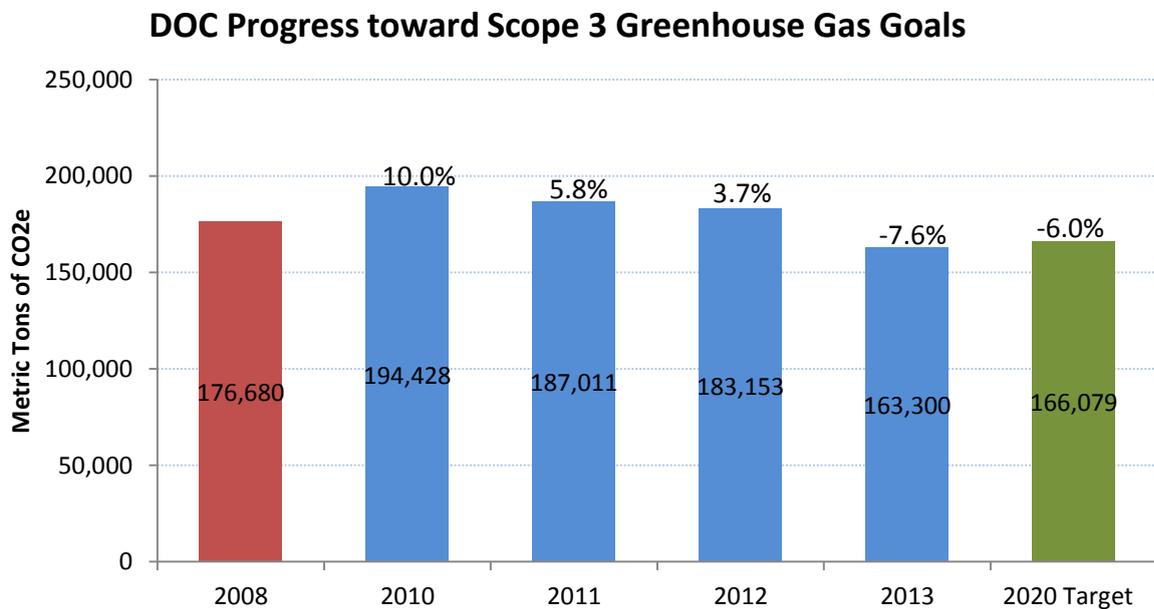
<p>Reduce on-site fossil-fuel consumption by installing more efficient boilers, generators, furnaces, etc. and/or use renewable fuels.</p>	<p>Yes</p>	<p>The Department has entered into an energy services agreement with the Department of Justice/Federal Prison Industries (DOJ/FPI). This agreement will allow the Department to pursue performance-based energy efficiency and renewable energy contracts without the need for upfront funding.</p> <p>A Green Grants program has been established to cost match proposed Operating Units energy efficiency and renewable energy projects through the Department's recycling account.</p>	<p>Award a performance based energy services contract at NIST and NOAA by January 2015. Award 2015 Green Grant projects by June 2015.</p>
<p>Reduce grid-supplied electricity consumption by improving/upgrading motors, boilers, HVAC, chillers, compressors, lighting, etc.</p>	<p>Yes</p>	<p>The Department has entered into an energy services agreement with the DOJ-FPI. This agreement will allow the Department to pursue performance-based energy efficiency and renewable energy contracts without the need for upfront funding.</p> <p>A Green Grants program has been established to cost match proposed Operating Units energy efficiency and renewable energy projects through the Department's recycling</p>	<p>Award a performance based energy services contract at NIST and NOAA by January 2015. Award 2015 Green Grant projects by June 2015.</p>

Employ operations and management best practices for energy consuming and emission generating equipment.	No	Due to limited resources and numerous priorities, this strategy will be considered as a focus area in 2016	
Install building utility meters and benchmark performance to track energy and continuously optimize performance.	No	Due to limited resources and numerous priorities, this strategy will be considered as a focus area in 2016.	

### Agency Progress toward Scope 3 GHG Goal

E.O. 13514 requires each agency establish a Scope 3 GHG emission reduction target to be achieved by FY 2020. The red bar represents the agency’s FY 2008 baseline. The green bar represents the FY 2020 reduction target. The blue bars represent annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2008 baseline. A negative percentage value indicates that the emissions have been increased compared to the FY 2008 baseline.

**Figure 1-2**



**Table 1-2: Goal 1 Strategies – Scope 3 GHG Reductions**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Reduce employee business ground travel.	No	Due to limited resources and numerous priorities, this strategy will be considered as a focus area at a future date in time.	N/A
Reduce employee business air travel.	Yes	Reduce Department-wide air travel costs.	Monitor FY 2014 Travel spend compared to FY 2012 and FY 2013 utilizing data in GSA Travel MIS and ADTRAV Rezintel System.
Develop and deploy employee commuter reduction plan.	No	Due to limited resources and numerous priorities, this strategy will be considered as a focus area at a future date in time.	

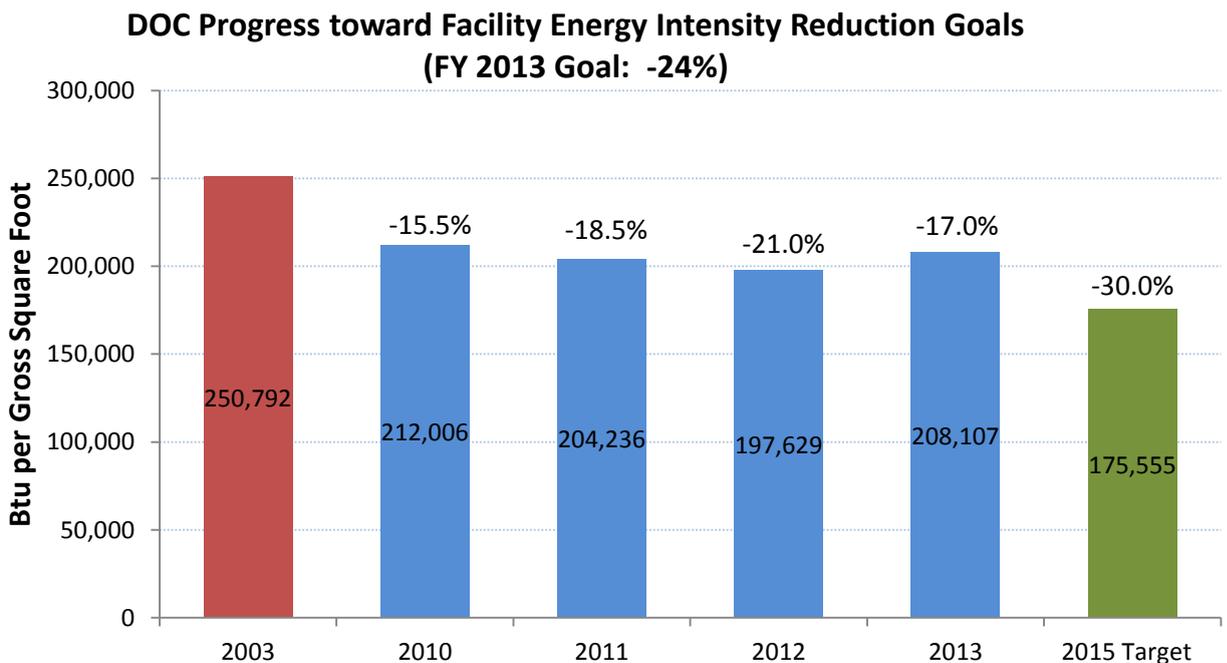
Use employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	Yes	The Department utilizes GSA's Carbon Footprint Tool to conduct an annual employee commuting survey. The tool provides data results by Operating Unit that can then be sorted, by year, to determine a trend analysis.	Conduct employee commuter survey through GSA's Carbon Footprint Tool by January 2015.
Increase number of employees eligible for telework and/or the total number of days teleworked.	Yes	Continue to market the positive impacts of telework for the agency, employee, and the environment through a variety of communication methods.	Increase the number of employees eligible to telework to 30%/Increase the number of employees teleworking at least 2 days a pay period to 10%.
Develop and implement bicycle commuter program.	No	Operating Unit programs exist where practical. Due to limited resources and numerous priorities, this strategy may be considered as a focus area at a future date in time.	
Provide bicycle commuting infrastructure.	No	Bicycle infrastructure exists and is being utilized throughout the Department. Additional infrastructure is not a top priority due to limited resources but may be considered at a future.	
Promote benefits of mass transit and telework to Reduce GHG Scope 3 emissions.	Yes	Utilize public events to distribute information on GHG Scope 3 reduction goals and strategies.	Set up displays at Earth Day (April) and Energy Awareness (October) month events.
Staff education		Utilize a quarterly training.	Conduct training session for all Operating Units in September 2014

## GOAL 2: SUSTAINABLE BUILDINGS

### Agency Progress toward Facility Energy Intensity Reduction Goal

E.O. 13514 Section 2 requires that agencies consider building energy intensity reductions. Further, the Energy Independence and Security Act of 2007 (EISA) requires each agency to reduce energy intensity 30 percent by FY 2015 as compared to the FY 2003 baseline. Agencies are expected to reduce energy intensity by 3 percent annually to meet the goal. The red bar represents the agency's FY 2003 baseline. The green bar represents the FY 2015 target reduction. The blue bars show annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2003 baseline. A negative percentage value indicates that the energy intensity has been increased compared to the FY 2003 baseline.

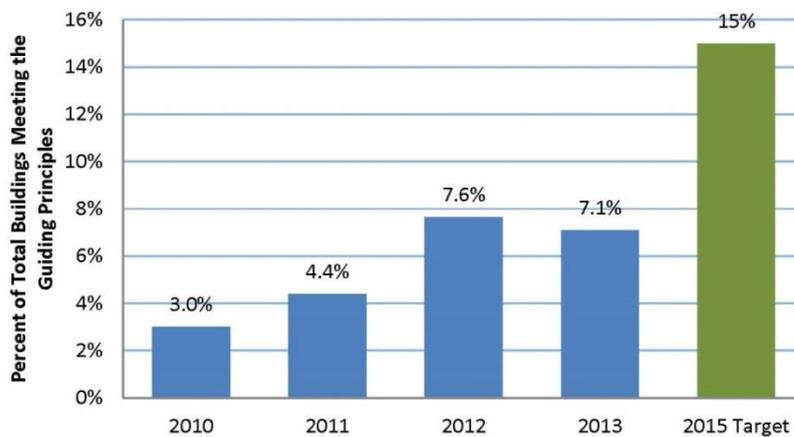
Figure 2-1



## Agency Progress toward Total Buildings Meeting the Guiding Principles

E.O. 13514 requires that by FY 2015, 15 percent of agencies' new, existing, and leased buildings greater than 5,000 square feet meet the Guiding Principles. In order to meet the FY 2015 goal, agencies should have increased the percentage of conforming buildings by approximately 2 percent annually from their FY 2007 baseline. The green bar represents the FY 2015 target. The blue bars represent annual agency progress on achieving this target.

**Figure 2-2**



**Table 2: Goal 2 Strategies – Sustainable Buildings**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Incorporate green building specifications into all new construction and major renovation projects.	Yes	Appropriate sustainability clauses will be included in all appropriate new construction and major renovation projects, unless mission requirements conflict.	Target is to meet 15% of sustainable green buildings by 2015.
Redesign or lease interior space to reduce energy use by daylighting, space optimization, sensors/control system installation, etc.	Yes	HVAC and exhaust redesigns and sensors/control systems are two ECMs being considered along with requiring stronger energy requirements in lease agreements.	Report progress towards the sustainable buildings goal as part of our 2014 annual GHG inventory and sustainability data report, no later than January 2015.
Deploy CEQ's Implementing Instructions –Sustainable Locations for Federal Facilities.	Yes	The Department has been working with local and state transit administrations to include federal workforce in the planning of mass transit projects.	Report progress towards the sustainable buildings goal as part of our 2014 annual GHG inventory and sustainability data report, no later than January 2015.

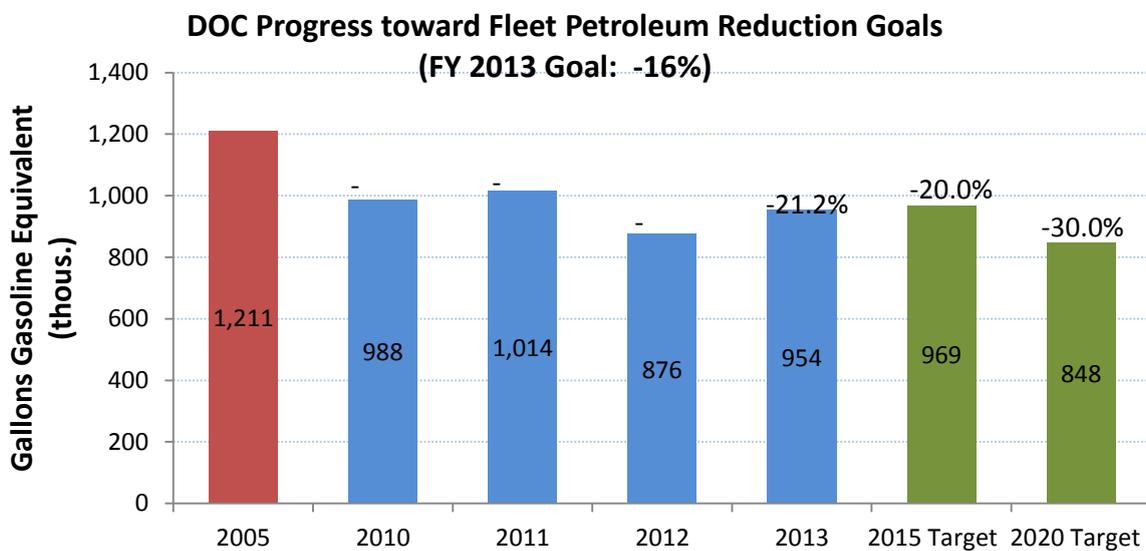
<p>Include in every construction contract all applicable sustainable acquisition requirements for recycled, biobased, energy efficient, and environmentally preferable products.</p>	<p>Yes</p>	<p>Alternative finance projects have several sustainability goals as base requirements. Where feasible sustainability design is being given special consideration in normal capital investments. The Department's Green Grant funding also allows exclusive targeting of sustainable projects.</p>	<p>Report progress towards the sustainable buildings goal as part of our 2014 annual GHG inventory and sustainability data report, no later than January 2015</p>
<p>Develop and deploy energy and sustainability training for all facility and energy managers.</p>	<p>Yes</p>	<p>The Department offers quarterly sustainability to Operating Units on a variety of topics, including sustainable buildings. Staff are also encouraged to utilize FEMP free training materials, specifically First Thursday seminars.</p>	<p>Report progress towards the sustainable buildings goal as part of our 2014 annual GHG inventory and sustainability data report, no later than January 2015</p>

## GOAL 3: FLEET MANAGEMENT

### Agency Progress toward Fleet Petroleum Use Reduction Goal

E.O. 13514 and the Energy Independence and Security Act of 2007 (EISA) require that by FY 2015 agencies reduce fleet petroleum use by 20 percent compared to a FY 2005 baseline. Agencies are expected to achieve at least a 2 percent annual reduction and a 30 percent reduction is required by FY 2020. The red bar represents the agency's FY 2005 baseline. The green bars represent the FY 2015 and FY 2020 target reductions. The blue bars represent annual agency progress on achieving these targets. The percentage at the top of each bar represents the reduction or increase from the FY 2005 baseline. A negative percentage indicates an increase in fleet petroleum use.

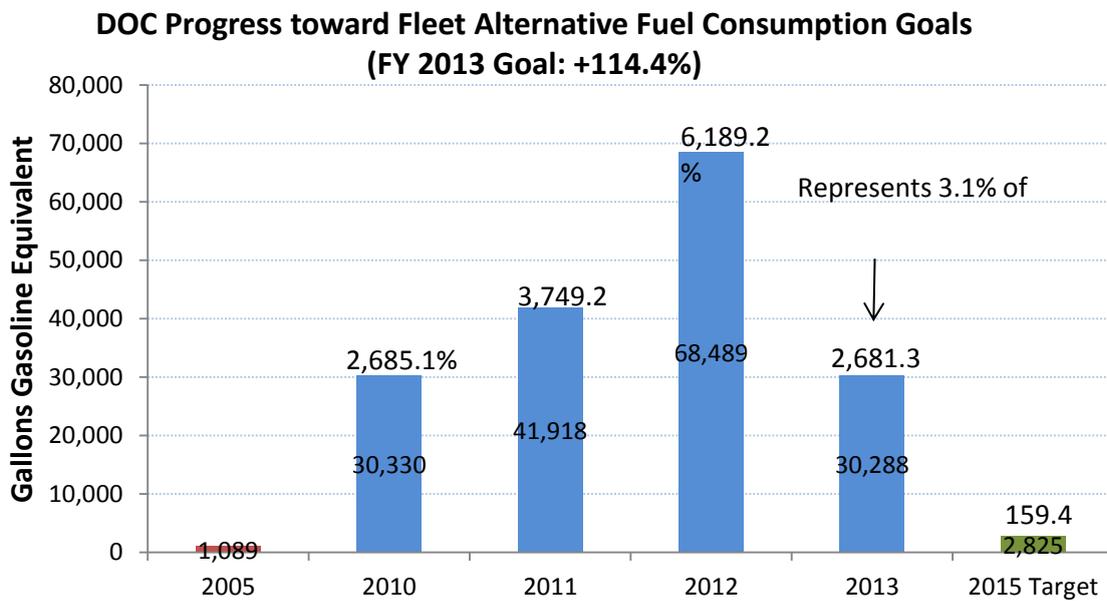
Figure 3-1



## Agency Progress toward Fleet Alternative Fuel Consumption Goal

E.O. 13423 requires that agencies increase total alternative fuel consumption by 10 percent annually from the prior year starting in FY 2005. By FY 2015, agencies must increase alternative fuel use by 159.4 percent, relative to FY 2005. The red bar represents the agency's FY 2005 baseline. The green bar represents the FY 2015 target. The blue bars represent annual agency progress on achieving this target. The percentage at the top of each bar represents the reduction or increase from the FY 2005 baseline. A negative percentage indicates a decrease in fleet alternative fuel use.

**Figure 3-2**



**Table 3: Goal 3 Strategies – Fleet Management**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b>  (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Optimize/Right-size the composition of the fleet (e.g., reduce vehicle size, eliminate underutilized vehicles, acquire and locate vehicles to match local fuel infrastructure).	Yes	All replacement vehicles will be reviewed by Departmental Fleet Manager to determine previous vehicle utilization and vehicle replacement based on mission needs and DOC vehicle allocation methodology (VAM). New vehicles will also be reviewed for VAM and mission requirements. All replacement and new light duty vehicles are required to be AF or low greenhouse gas (GHG) vehicles.	Monthly VAM reports from DOC Operating Unit consisting of vehicle eliminations/downsizing and cost-savings. Infrastructure does not support AF in most locations; however, DOC will continue to seek new stations and private refueling stations in these locations.

<p>Reduce miles traveled (e.g., share vehicles, improve routing with telematics, eliminate trips, improve scheduling, use shuttles, etc.).</p>	<p>No</p>	<p>DOC will consider working with Veterans Affairs (VA) and other Federal Agencies in a shuttle service pilot in downtown Washington, D.C. This service will combine various Federal Agency shuttle services into one. Pilot scheduled to start in fall of 2014.</p>	<p>If DOC participates in VA-led shuttle pilot, DOC ridership will be monitored to see if we should become permanent members based on utilization and cost.</p>
<p>Acquire only highly fuel-efficient, low greenhouse gas-emitting vehicles and alternative fuel vehicles (AFVs).</p>	<p>Yes</p>	<p>Continue to replace light duty vehicles with AFV or low GHG vehicles. Replacing vehicles in areas where alternative fuel (AF) is not available with low GHG vehicles.</p>	<p>DOC will continue to monitor AF usage monthly through FMIS and GSA IMS and fuel used by low GHG vehicles in certain areas. DOC will evaluate joining a pilot sponsored by Department of Energy called FleetDASH to monitor AF usage as well.</p>
<p>Increase utilization of alternative fuel in dual-fuel vehicles.</p>	<p>Yes</p>	<p>Monitor alternative fuel consumption through Department of Commerce (DOC) Fleet Solution (FMIS) and General Services Administration (GSA) Information Management System (IMS) and educate Operating Unit Fleet Managers on policies and procedures.</p>	<p>Using monthly fuel reports from FMIS to meet Executive Order (EO) 13423 AF target of 2,567 Gasoline Gallon Equivalent (GGE) set in Federal Automotive Statistical Tool (FAST).</p>

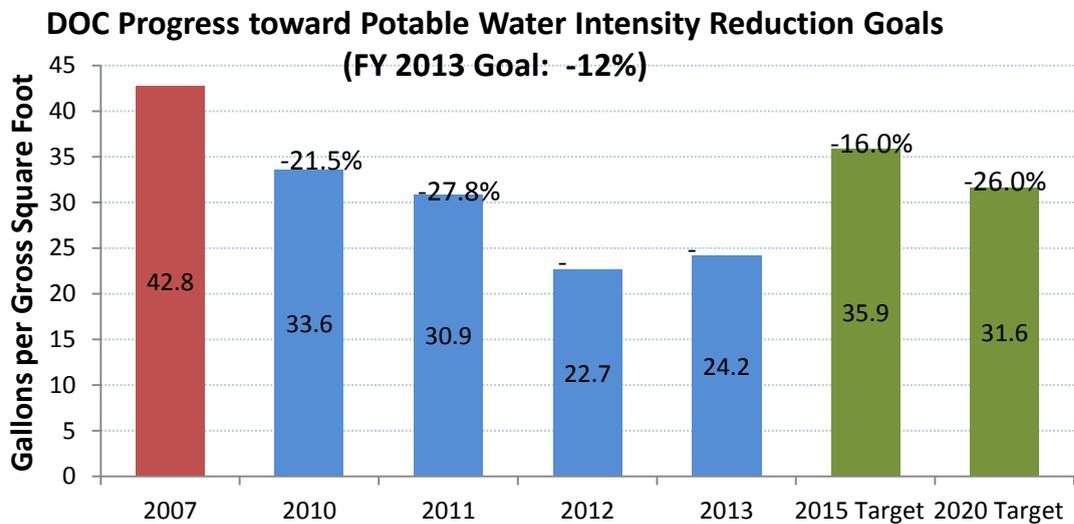
<p>Use a Fleet Management Information System to track fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles.</p>	<p>Yes</p>	<p>Continue to improve the interfaces and data migration into the Fleet Management Information System (FMIS) for owned and commercial leased vehicles. Continue to use the GSA IMS to report GSA fuel consumption into FMIS. Train Fleet Managers on how to use the FMIS more effectively.</p>	<p>DOC will review transactions from the fleet card that is not captured in FMIS by addressing each error individually to try and correct the error. Work closely with JP Morgan Chase to seek system improvements to get consistent and complete data. Work with Sunflower to ensure data is loaded correctly.</p>
<p>Increase GSA leased vehicles and decrease agency-owned fleet vehicles, when cost effective.</p>	<p>Yes</p>	<p>Continue to replace owned vehicles that have reached or out lived life expectancy with GSA leased vehicles where possible, primarily medium and heavy duty vehicles.</p>	<p>Continue to review inventory of medium and heavy duty vehicles in inventory for replacement. Criteria for replacement is over mileage and year standards, cost for upkeep and vehicle technology.</p>

# GOAL 4: WATER USE EFFICIENCY & MANAGEMENT

## Agency Progress toward Potable Water Intensity Reduction Goal

E.O. 13514 requires agencies to reduce potable water intensity by 2 percent annually through FY 2020 compared to an FY 2007 baseline. A 16 percent reduction is required by FY 2015 and a 26 percent reduction is required by FY 2020. The red bar represents the agency’s FY 2007 baseline. The green bars represent the FY 2015 and FY 2020 target reductions. The blue bars represent annual agency progress on achieving these targets. The percentage at the top of each bar represents the reduction or increase from the FY 2007 baseline. A negative percentage value indicates that potable water use intensity has increased compared to the FY 2007 baseline.

**Figure 4-1**



**Table 4: Goal 4 Strategies – Water Use Efficiency & Management**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b>  (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Purchase and install high efficiency technologies (e.g., WaterSense).	Yes	Major renovations, repairs, and performance-based contracting project all give preference to water efficient technologies.	The Department’s Energy and Environmental Management Manual, Chapter 30, Water Conservation, requires Operating Units to reduce water use by 2% annually.
Prepare and implement a water asset management plan to maintain desired level of service at lowest life cycle cost (for best practices from the EPA, go to <a href="http://go.usa.gov/KvbF">http://go.usa.gov/KvbF</a> )	No	The Department is currently “green” on the OMB Sustainability Scorecard for water intensity and has exceeded the FY 2020 reduction goal. Limited resources are being utilized to focus on “red” areas of the scorecard.	
Minimize outdoor water use and use alternative water sources as much as possible.	Yes	Minimization and alternative water use are and will continue to be encouraged. Limited resources have lowered the priority of these efforts for some Operating Units.	The Department’s Energy and Environmental Management Manual, Chapter 30, Water Conservation, requires Operating Units to reduce water use by 2% annually.
Design and deploy water closed-loop, capture, recharge, and/or reclamation systems.	Yes	Larger facilities will continue to implement these systems through performance-based contracts as applicable.	The Department’s Energy and Environmental Management Manual, Chapter 30, Water Conservation, requires Operating Units to reduce water use by 2% annually.

Install advanced meters to measure and monitor (1) potable and (2) industrial, landscaping and agricultural water use.	No	The Department continues to focus limited resources on installation of electricity and potable water meters.	
Develop and implement programs to educate employees about methods to minimize water use	Yes	The Department offers quarterly sustainability to Operating Units on a variety of topics, including water efficiency. Staff are also encouraged to utilize FEMP free training materials, specifically First Thursday seminars.	The Department's Energy and Environmental Management Manual, Chapter 30, Water Conservation, requires Operating Units to reduce water use by 2% annually.
Assess agency water strategy to determine the impact of water use on the agency's energy use and efficiency	No	Energy use related to water/wastewater has been partially assessed and is insignificant compared to other energy issues throughout the Department. Focus areas currently include combined heat and power generation, seal up building envelopes, and HVAC upgrades.	

## GOAL 5: POLLUTION PREVENTION & WASTE REDUCTION

### **Agency Progress toward Pollution Prevention & Waste Reduction**

E.O. 13514 requires that Federal agencies promote pollution prevention and eliminate waste. The E.O. requires agencies to minimize the use of toxic and hazardous chemicals and pursue acceptable alternatives. It also requires agencies minimize waste generation through source reduction, increase diversion of compostable materials, and by the end of FY 2015 divert at least 50% of non-hazardous and 50% of construction and demolition debris.<sup>1</sup>

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<sup>1</sup> Waste guidance will be issued in mid-late FY 2014, and agencies will be expected to begin implementation in FY 2015. Next year's SSPP will include strategies as appropriate, and accounting will begin in FY 2016.

**Table 5: Goal 5 Strategies – Pollution Prevention & Waste Reduction**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Eliminate, reduce, or recover refrigerants and other fugitive emissions.	Yes	The Department has published guidance to all of its Operating Units that requires all facility managers to identify and implement source reduction opportunities, minimize the generation of such pollutants when possible, and develop and implement HazMat elimination or substitution processes through green procurement.	The Department will utilize GSA’s Carbon Footprint and FEMP’s GHG emissions report to track fugitive emissions such as the release of refrigerants from air conditioning units as well as other fugitive emissions. The Department will report total emissions through the January submission of the GHG inventory.

<p>Reduce waste generation through elimination, source reduction, and recycling.</p>	<p>Yes</p>	<p>The Department will continue to maximize municipality collection of recyclables; research ways to expand types of recycling (e.g., vendors that specialize, FedBizOps bids for excess, usable materials, etc.); continue paperless office communication; electronic file sharing and double-sided printing; and research ways to strengthen netzero construction/demolition requirements in contracts.</p> <p>The Department will continue to operate a Green Store within HCHB to collect and redistribute unused office supplies and look for expansion opportunities to field activities where feasible.</p>	<p>The Department will continue to track and report waste diversion against the 2015 50% diversion target.</p>
<p>Implement integrated pest management and improved landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals/materials.</p>	<p>Yes</p>	<p>The Department has published guidance to all of its Operating Units that requires all facility managers to implement integrated pest management and other appropriate landscape management practices.</p>	<p>Applicable facilities will review and update their Integrated Pest Management Plans (IPMP) every five years</p>
<p>Establish a tracking and reporting system for construction and demolition debris elimination.</p>	<p>No</p>		

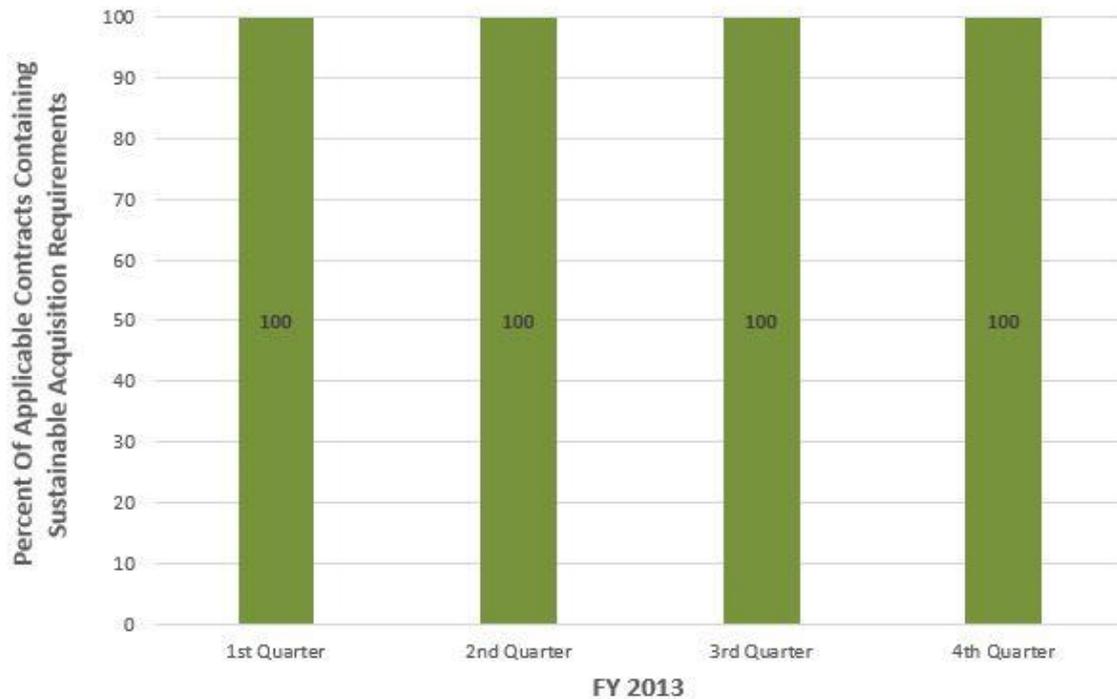
Develop/revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.	Yes	<p>The Department has invested in an Environmental Compliance and Reporting System (ECARS) that all Bureaus will use to facilitate facility and operations self-assessments.</p> <p>The Department also requires the substitution of hazardous chemicals (HC) wherever possible, by the use of performance contracts.</p>	The Department has required all Operating Units to provide FY 15 facility self-assessment schedules.
Take inventory of current HFC use and purchases	No		
Require high-level waiver or contract approval for any agency use of HFCs	No		
Ensure HFC management training and recycling equipment are available	No		
Environmental Management System	Yes	The Department will continue to retain a “conforming” EMS system at the Headquarters level.	Next program audit scheduled for Oct 2014.

## GOAL 6: SUSTAINABLE ACQUISITION

### Agency Progress toward Sustainable Acquisition Goal

E.O. 13514 requires agencies to advance sustainable acquisition and ensure that 95 percent of applicable new contract actions meet federal mandates for acquiring products that are energy efficient, water efficient, biobased, environmentally preferable, non-ozone depleting, recycled content, or are non-toxic or less toxic alternatives, where these products meet performance requirements. To monitor performance, agencies perform quarterly reviews of at least 5 percent of applicable new contract actions to determine if sustainable acquisition requirements are included.

**Figure 6-1**



**Table 6: Goal 6 Strategies – Sustainable Acquisition**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Update and deploy agency procurement policies and programs to ensure that federally- mandated designated sustainable products are included in all relevant procurements and services.	Yes	Update and deploy Commerce policies on Sustainable Acquisition to properly reflect the Federal Acquisition Regulation.	Update Commerce acquisition policies within 6-months of publication of new FAR requirements relative to sustainable acquisition.
Deploy corrective actions to address identified barriers to increasing sustainable procurements with special emphasis on biobased purchasing.	Yes	Conduct an analysis of the Sustainable Acquisition Program as part of the Independent Validation and Verification Process.	Issue corrective action plans within three-months after the identification of barriers.
Include biobased and other FAR sustainability clauses in all applicable construction and other relevant service contracts.	Yes	Include biobased and other FAR sustainability clauses in all applicable contract actions.	In FY 2015 relative to FY 2014, increase the number of biobased actions by 5% as outlined in the SSPP Biobased Purchasing Supplement.
Review and update agency specifications to include and encourage biobased and other designated green products to enable meeting sustainable acquisition goals.	N/A		

<p>Use Federal Strategic Sourcing Initiatives, such as Blanket Purchase Agreements (BPAs) for office products and imaging equipment, which include sustainable acquisition requirements.</p>	<p>Yes</p>	<p>Actively promote the use of Federal Strategic Sourcing Initiatives (FSSI) for office supplies.</p>	<p>Increase compliance with use of FSSI office supplies by 5% from FY2014 through the use of periodic procurement bulletins.</p>
<p>Report on sustainability compliance in contractor performance reviews.</p>	<p>No</p>		

## GOAL 7: ELECTRONIC STEWARDSHIP & DATA CENTERS

### Agency Progress toward EPEAT, Power Management & End of Life Goals

E.O. 13514 requires agencies to promote electronics stewardship by: ensuring procurement preference for EPEAT-registered products; implementing policies to enable power management, duplex printing, and other energy-efficient features; employing environmentally sound practices with respect to the disposition of electronic products; procuring Energy Star and FEMP designated electronics; and, implementing best management practices for data center operations.

**Figure 7-1**

INSTRUCTIONS: Agencies should not amend or edit this figure. If changes are necessary, contact CEQ.

EPEAT	POWER MANAGEMENT	END-OF-LIFE	COMMENTS
			No EPEAT Reporting System in place

**EPEAT:**

	95% or more Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide
	85-94% or more Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide
	84% or less Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide

**Power Management:**

	100% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	90-99% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	89% or less Power Management Enabled Computers, Laptops and Monitors Agency-wide

End-of-Life:

	<p>100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicor, USPS Recycling Program or Certified Recycler (R2, E-Stewards). <i>Submitted annual report to GSA for Federal Electronics Assets furnished to non-Federal recipients.</i></p>
	<p>100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicor, USPS Recycling Program and/or non-Certified Recycler. <i>Submitted annual report to GSA for Federal Electronics Assets furnished to non-Federal recipients.</i></p>
	<p>Less than 100% of Electronics at end-of-life disposed through GSA Xcess, CFL, Unicor, USPS Recycling Program or non-Certified Recycler. <i>No annual report submitted to GSA for Federal Electronics Assets furnished to non-Federal recipients.</i></p>

**Table 7: Goal 7 Strategies – Electronic Stewardship & Data Centers**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Identify agency “Core” and “Non-Core” Data.	Yes	We will continue to monitor and update identification of core and non-core data centers, to include identification of non-core sub-category data centers. The sub-category data centers are those that can’t be migrated at this time.	Full identification of all non-core sub-category data centers within the DOC.
Consolidate 40% of agency non-core data centers.	Yes	We will continue to pursue, with the Operating Units, the migration of non-core data centers to core centers. The exception will be the migration of the non-core sub-category data centers, as identified by the Operating Units.	Migrate all non-core data centers identified by the Operating Units for migration.
Optimize agency Core Data Centers across total cost of ownership metrics.	Yes	We will continue to monitor the strategy to improve core data centers in areas such as energy efficiency and virtualization. Identify core data centers capable of optimization.	Core data centers capable of optimization will see improvements in the area of cooling efficiencies and virtualization.

<p>Ensure that power management, duplex printing, and other energy efficiency or environmentally preferable options and features are enabled on all eligible electronics and monitor compliance.</p>	<p>Yes</p>	<p>We will provide policy and guidance on energy efficiency options on all eligible It-related electronic devices, and perform data calls to ensure policy and guidance are adhered to.</p>	<p>All eligible IT-related electronic devices are configured with energy efficiency settings.</p>
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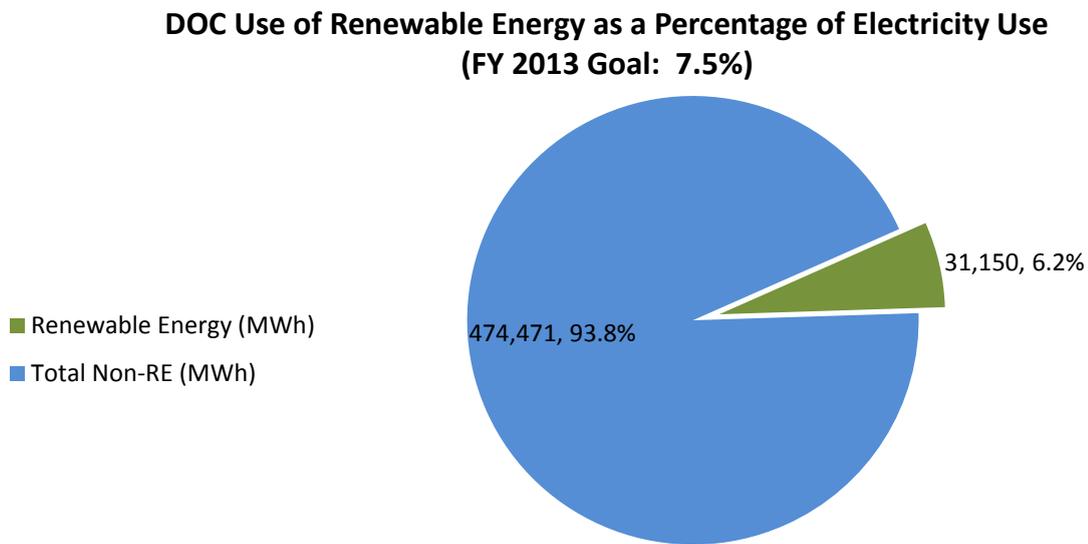
<p>Update and deploy policies to use environmentally sound practices for disposition of all agency excess or surplus electronic products, including use of certified eSteward and/or R2 electronic recyclers, and monitor compliance.</p>	<p>No</p>	<p>Enhance the internal screening process to allow the Department to capture cost savings/cost avoidance by reutilizing excess personal property prior to making a purchase.</p>	<p>DOC will continue to enhance the internal screening process to allow the Department to capture cost savings/cost avoidance. The goal is to have this functionality available prior to the end of FY 2014.</p>
<p>Ensure acquisition of 95% EPEAT registered and 100% of ENERGY STAR qualified and FEMP designated electronic office products.</p>	<p>Yes</p>	<p>The Department of Commerce has tracked EPEAT designated products in the past and will review the capabilities of current systems to monitor ENERGY STAR and FEMP designated products.</p>	<p>Assess overall strategy in October 2014 to determine what improvements can be made to meet this goal.</p>
<p>Pursue ways to enhance energy efficiency capability on non-core data centers identified with a sub-category that can't be migrated to a core data center at this time.</p>	<p>Yes</p>	<p>Work with Operating Units to ensure non-core sub-category data centers that are unable to be migrated to core data centers are evaluated to see what energy efficiency strategies can possibly be implemented.</p>	<p>All non-core sub-category data centers have been evaluated for implementation of energy efficiency upgrades where appropriate.</p>

## GOAL 8: RENEWABLE ENERGY

### Agency Renewable Energy Percentage of Total Electricity Usage

E.O. 13514 requires that agencies increase use of renewable energy. Further, EPACT 2005 requires agencies to increase renewable energy use such that 7.5 percent of the agency's total electricity consumption is generated by renewable energy sources for FY 2014 and beyond. For FY 2012, the required target was 5 percent of an agency's total electricity consumption.

**Figure 8-1**



**Table 8: Goal 8 Strategies – Renewable Energy**

(A) Will the agency implement the following strategies to achieve this goal?	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Purchase renewable energy directly or through Renewable Energy Credits (RECs).	Yes	While REC purchase is utilized by most agencies within the Department and is the least complicated option to meet renewable energy mandates, they are not supported by all agencies within the Department. Direct purchase renewable energy is the preferred option and will be pursued by those agencies who do not support RECs, however these agreements are much more complicated and must be initiated at the start of the fiscal year.	The Department will pursue renewable energy use to achieve 7.5 percent of its electricity use.
Install onsite renewable energy on federal sites.	Yes	Limited resources (and available land) has slowed progress. The Department continues to promote its cost-match Green Grants program to encourage project implementation as well as the use of performance-based contracting.	The Department will pursue renewable energy use to achieve 7.5 percent of its electricity use.
Lease land for renewable energy infrastructure.	N/A	The Department has not been delegated authority to lease land.	

Develop biomass capacity for energy generation.	No	Previous NREL audits throughout the Department have not ranked biomass as the most favorable renewable option. Due to limited resources and numerous priorities, this strategy will be considered as opportunities present themselves through performance-based contracting or green grant submissions.	
Utilize performance contracting methodologies for implementing ECMs and increasing renewable energy.	Yes	Yes. Conflicting requirements regarding capitol asset ownership equipment have prevented successful renewable ECM implementation.	The Department will pursue renewable energy use to achieve 7.5 percent of its electricity use.
Work with other agencies to create volume discount incentives for increased renewable energy purchases.	Yes	GSA and DLA appear to be pursuing group agreements, however, barriers continue to exist.	The Department will pursue renewable energy use to achieve 7.5 percent of its electricity use.

Implement Green Grant (cost match) program to support the installation of renewable energy projects.	Yes	A Green Grants program has been established to cost match proposed Operating Units energy efficiency and renewable energy projects through the Department's recycling fund account.	If cost effective, the project selection panel will support at least one renewable energy project through the Green Grants program in the next 12 months.
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## GOAL 9: CLIMATE CHANGE RESILIENCE

### Agency Climate Change Resilience

E.O. 13514 requires each agency to evaluate agency climate change risks and vulnerabilities to identify and manage the effects of climate change on the agency's operations and mission in both the short and long term.

**Table 9: Goal 9 Strategies – Climate Change Resilience**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b> (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments, and private stakeholders.	Yes	NOAA will continue to coordinate climate and related ecological research and services partnerships within the Department and with Department partners to better understand how climate variability and change will affect communities, cultural resources, and ecological processes.	NOAA will continue to produce regional climate outlooks (products that describe recent and present conditions, impacts and projected climate events) on a quarterly basis for the Alaska, Pacific, Western, Southern Central, and Northeast regions.

<p>Update agency emergency response procedures and protocols to account for projected climate change, including extreme weather events.</p>	<p>Yes</p>	<p>The Department's Continuity of Operations Plan (COOP) is updated annually and every Operating Unit within the Department is required to participate in COOP exercises and update their COOP.</p>	<p>Successful participation in the annual government-wide COOP event or any other COOP events.</p>
<p>Ensure workforce protocols and policies reflect projected human health and safety impacts of climate change.</p>	<p>No</p>	<p>Telework policy requires employees to telework when their office is closed due to hazardous weather, and provides employees with the option of teleworking when OPM provides for unscheduled telework in their Operating Status.</p>	<p>Maintain statistics on the number of employees who telework when offices are closed and when an unscheduled telework operating status is announced in the Washington DC area.</p>

<p>Update agency external programs and policies (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.</p>	<p>Yes</p>	<p>Leveraging the Comprehensive Economic Development Strategy Content Guidelines and its leadership of the Economic Recovery Support Function of the National Disaster Recovery Framework (NDRF), the Economic Development Administration (EDA) will encourage communities and regions to incorporate resiliency (including resiliency to the effects of climate change) into their economic development planning and implementation decisions.</p>	<p>EDA will finalize and disseminate new Comprehensive Economic Development Strategy Content Guidelines in conjunction with the release of new regulations. EDA will also conduct internal trainings to regional offices on these Guidelines.</p>
<p>Ensure agency principals demonstrate commitment to adaptation efforts through internal communications and policies.</p>	<p>No</p>		
<p>Identify vulnerable communities that are served by agency mission and are potentially impacted by climate change and identify measures to address those vulnerabilities where possible.</p>	<p>No</p>		

<p>Ensure that agency climate adaptation and resilience policies and programs reflect best available current climate change science, updated as necessary.</p>	<p>Yes</p>	<p>The Department of Commerce is updating its Climate Change Adaptation Strategy per E.O. 13653.</p>	<p>The Department of Commerce will complete this update by June 30, 2014.</p>
<p>Design and construct new or modify/manage existing agency facilities and/or infrastructure to account for the potential impacts of projected climate change.</p>	<p>Yes</p>	<p>The Department will incorporate the criteria GSA develops for, “assessing the criticality of facilities to mission and thereby assess vulnerability to climate changes risks over time” into its vulnerability screening analyses.</p>	<p>The Department will provide GSA with a list of GSA real property assignments with more than five (5) years remaining on the lease term and in facilities owned by GSA where Commerce occupies space.</p>

<p>Incorporate climate preparedness and resilience into planning and implementation guidelines for agency-implemented projects.</p>	<p>Yes</p>	<p>NOAA will provide “Roadmap for Adapting to Coastal Risk,” “Climate Adaptation for Coastal Communities,” “Coastal Inundation Mapping,” and “Introducing Green Infrastructure for Coastal Resilience” trainings.</p>	<p>NOAA will develop, enhance or expand resilience assessment and planning data and tools and notify local users of availability for 50 coastal counties.</p>
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## GOAL 10: ENERGY PERFORMANCE CONTRACTS

### Agency Progress Toward Goal

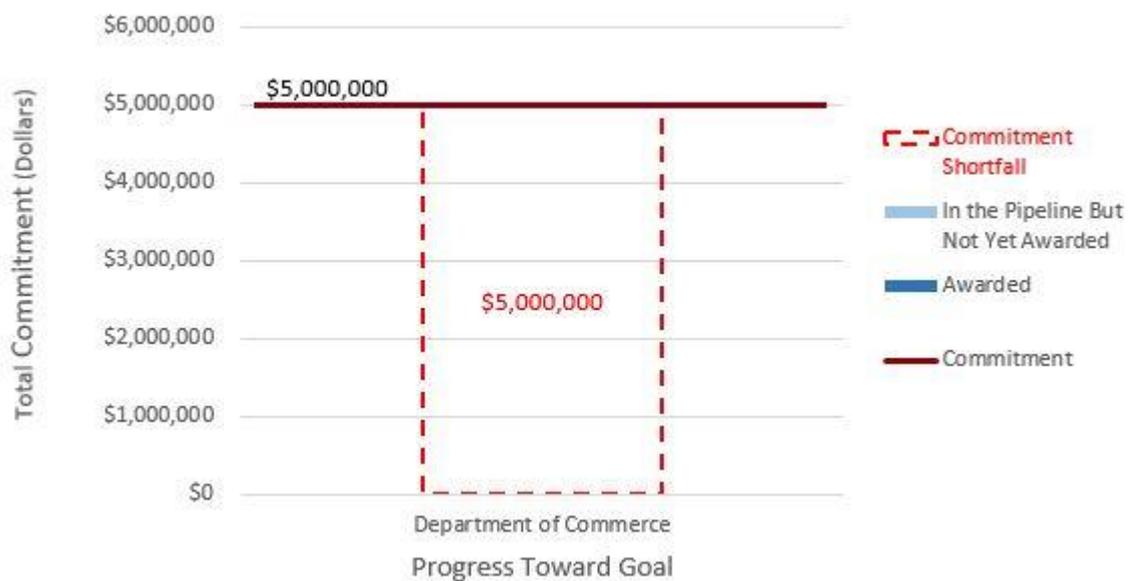
Energy Performance Contracts, including both Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs), enable agencies to obtain energy efficiency investments in buildings and deploy on-site renewable energy through long-term contracts with the private sector, which are in turn paid through savings derived from those investments.<sup>2</sup>

### Agency Awarded Energy Performance Contracts

The chart below represents the agency's performance contracting commitment and progress toward that commitment reported through December 31, 2013 (for agencies subject to the 2011 President's Performance Contracting Challenge). The bar graph shows the total dollar value (in millions) of (1) already awarded projects, (2) projects in the pipeline but not yet awarded, and (3) the pipeline shortfall or surplus depending on whether the agency has reached their commitment goal.

NOTE: All agencies are to meet or exceed their initial target no later than June 30, 2014.

**Figure 10-1**



<sup>2</sup> Goal 10 Section is relevant only to agencies subject to the PPCC.

**Table 10: Goal 10 Strategies – Energy Performance Contracts**

(A) <b>Will the agency implement the following strategies to achieve this goal?</b>	(B) <b>Top Five? Yes/No/NA</b>	(C) <b>Strategy Narrative</b>  (100 word limit)	(D) <b>Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months</b>
Evaluate 25% of agency’s most energy intensive buildings for use with energy performance contracts	Yes	The agency’s 75% most energy intensive buildings were evaluated for use with energy performance contracts over the last four years. Remaining buildings not yet included in ongoing performance contract procurements will be re-assessed periodically for possible inclusion in new efforts.	Re-evaluate most energy intensive buildings not already included in a performance contract procurement for use with energy performance contracts
Prioritize top ten projects which will provide greatest energy savings potential	Yes	IGAs are underway to identify and implement the top ten energy savings projects at each site.	Complete IGAs and award contracts sufficient to meet President’s Federal Facility Challenge commitment of \$12 million.
Cut cycle time of performance contracting process by at least 25%	No	Since energy performance contracts are new to Commerce and very complex, therefore our agency favors a deliberate and careful approach.	
Assign agency lead to participate in strategic sourcing initiatives	No	Initial discussions are underway with the Department’s Strategic Sourcing office to look at utility purchase, however, it’s viability has not yet been established.	

Devote 2% of new commitments to small buildings (<20k sq. ft.)	No	At this time the Department is focusing on its most energy intensive facilities.	
Identify and commit to include 3-5 onsite renewable energy projects in energy performance contracts	No	Renewable energy has been examined as part of our ongoing ESPC and UESC projects and found to be potentially cost-effective in only one location. New opportunities will be explored as current barriers are lifted.	
Ensure relevant legal and procurement staff are trained by FEMP ESPC/ UESC course curriculum	Yes	All relevant legal and procurement staff are currently trained by FEMP ESPC/UESC courses. All new team members will receive appropriate training.	Key personnel have taken FEMP ESPC/UESC course, as appropriate.
Provide measurement and verification data for all awarded projects	Yes	The Department anticipates award of 2-4 energy performance contracts in FY15.	M&V data for all awarded projects available.
Enter all reported energy savings data for operational projects into MAX COLLECT (max.gov)	Yes	All data will be entered as it becomes available.	All relevant data reported and up-to-date in OMB Max.

## **APPENDIX**

### **Climate Change Adaptation Strategy**

**Department of Commerce  
Climate Change Adaptation Strategy  
Updated June 2014**

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## I. Background

On October 5, 2009, President Obama signed Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, to establish an integrated strategy for sustainability in the Federal Government. The EO calls on Federal agencies to develop and implement Strategic Sustainability Performance Plans (Sustainability Plans). As part of their Sustainability Planning process, agencies are to “evaluate agency climate change risks and vulnerabilities to manage both the short- and long-term effects of climate change on the agency’s mission and operations” (EO 13514 Section 8(i)).

Building on the efforts of EO 13514, E.O. 13653 (November 1, 2013), *Preparing the United States for the Impacts of Climate Change*, requires that each Federal agency develop or continue to develop, implement, and update comprehensive plans that integrate consideration of climate change into agency operations and overall mission objectives.

In 2011 and 2012, pursuant to E.O. 13514<sup>1</sup>, CEQ issued *Implementing Instructions for Federal Agency Climate Change Adaptation Planning (Implementing Instructions)*, followed by further guidance on *Preparing Federal Agency Climate Change Adaptation Plans*. Most recently CEQ issued *Preparing Federal Agency Climate Change Adaptation Plans in Accordance with Executive Order 13653 (December 19, 2013)*. These documents provide useful guidance on considerations critical to Federal agency climate change adaptation planning, particularly as it applies to operations. The 2011 *Implementing Instructions* required each agency to include an agency climate change adaptation plan as an appendix to the June 2012 Sustainability Plan submission. Initial adaptation plans generally demonstrated a basic understanding of the challenges and risks posed by climate change to agencies’ missions, programs, and operations. The plans included commitments to take specific actions in FY 2013 and beyond to better understand and address those risks and opportunities.

To respond to EO 13514, the Task Force’s October 2010 recommendations, and CEQ’s implementing instructions, the Department of Commerce (Department) issued a Departmental Administrative Order (DAO) 216-18, “Addressing Climate Change Impacts at the Department of Commerce in Operations and Programs” on August 31, 2011.<sup>2</sup> In addition, the Department included its climate change adaptation plan in its Sustainability Plan in June 2012.<sup>3</sup>

The 2011 *Implementing Instructions* emphasized that Federal agency adaptation plans should be “living documents,” and should be improved over time to reflect new information, ongoing agency performance against existing goals and targets, and emerging strategic priorities. Since 2012, agencies have continued to pursue a number of actions to address climate adaptation and resilience needs.

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<sup>1</sup>Federal Leadership in Environmental, Energy and Economic Performance - EXECUTIVE ORDER 13514  
<http://www.whitehouse.gov/administration/eop/ceq/initiatives/sustainability>

<sup>2</sup> Department of Commerce Climate Change Adaptation Planning (DAO 216-18), August 31, 2011.  
[http://www.osec.doc.gov/opog/dmp/daos/dao216\\_18.html](http://www.osec.doc.gov/opog/dmp/daos/dao216_18.html)

<sup>3</sup> United States Department of Commerce Strategic Sustainability Performance Plan. June 2013.  
[http://www.osec.doc.gov/ofeq/Documents/OSEEP/Docs%20&%20Newsletters/Documents/2013\\_SSPP\\_FINAL\\_Public\\_Version.pdf](http://www.osec.doc.gov/ofeq/Documents/OSEEP/Docs%20&%20Newsletters/Documents/2013_SSPP_FINAL_Public_Version.pdf)

The Department's updated adaptation plan reflects lessons learned in the preparation and subsequent implementation of adaptation plans submitted under E.O. 13514 and incorporates new considerations and elements included in E.O. 13653 and the December 2013 Guidance.

## **II. Why is Adaptation Planning Important for the Department of Commerce?**

The Department has a longstanding role in the protection of life and property from environmental hazards and in the stewardship of natural resources. This traditional role is now augmented by a robust agenda focused on providing communities and businesses with the information, products, and services they need to prepare for and prosper in a changing environment.

As social and economic systems evolve and become more complex, it becomes even more critical to have timely, actionable environmental intelligence. That intelligence can preserve and improve human and environmental health, help develop and maintain a viable national infrastructure, and promote growth. Recent events, such as the Deepwater Horizon oil spill in 2010, the historical tornado outbreaks of 2011 and Superstorm Sandy in 2012, demonstrate the need for better environmental intelligence to ensure that communities and businesses have the tools and information they need to address these challenges. The Department's Strategic Plan will positively impact the lives of all Americans, from coast-to-coast and everywhere in between, every day.

Across the United States and the globe, we are already experiencing, and will continue to experience, the impacts of climate change. Climate change impacts include extreme heat and precipitation events, more frequent and intense wildfires, reduced snowpack, increasing ocean temperatures, loss of sea ice, and rising sea levels, among others.<sup>4</sup> Climate variability and climate change will affect a range of Departmental services, operations, programs, and assets. A changing climate will also result in financial, operational, social, and environmental risks and opportunities across diverse industries and sectors at local, regional, national, and international levels, impacting the Department's partners and the customers it serves.

Some of the Department's infrastructure and facilities may be directly affected by climate change. For example, higher temperatures will increase cooling loads on building HVAC systems. More severe and frequent precipitation, and storms, as well as sea level rise will increase potential risks of flooding and inundation. By accounting for the effects of a changing climate through a more comprehensive approach to facilities planning, the Department can reduce, and in some cases avoid, impacts to property which could also translate to future cost-savings since expensive repairs or replacement of facilities would be minimized. In addition, smart facilities planning will reduce potential impacts on the health and safety of the Department's employees.

With regards to the Department's clients and stakeholders, climate change will provide additional challenges and opportunities as the Department attempts to advance U.S.

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<sup>4</sup> Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2. See also National Research Council. 2011. *America's Climate Choices*. The National Academies Press. Washington, DC.

competitiveness in the global market place, promote job creation, and enhance economic growth and standards of living for all Americans. Depending on their location and their industry, some U.S. businesses and workers will be negatively affected and others positively affected by climate change. For example, rising seas and more extreme weather events disrupt transportation and energy infrastructure, including ports, roads, airports, electricity, and oil and gas production. A 2008 multi-agency report on transportation infrastructure in the Gulf of Mexico region noted that depending on the emissions scenarios used and geographic location, by 2100, sea levels in the region could rise by two to four feet as a mid-range projection, inundating a vast portion of the region's major roads and other critical transportation infrastructure.<sup>5</sup> For example, if sea levels rise two feet, 64 percent of the region's port facilities would be impacted. Even more transportation infrastructure would be vulnerable to storm surge; more than half of the region's major highways, one third of its rail miles, 22 airports, and all ports would be impacted by an 18 foot storm surge. Damage to this critical commerce infrastructure could increase the cost and time needed to transport and deliver goods, making economic growth more challenging. However, climate change may positively impact our nation's competitiveness as well by increasing the demand for sustainable, green products that can assist businesses and communities adapt to a changing climate. The recently released National Climate Assessment explores this, and other, similar impacts at the regional scale for regions around the nation, making it easier for the Department to assist its clients and stakeholders in anticipating critical challenges – and exploring emerging opportunities.<sup>6</sup>

The negative impact of climate change on domestic and overseas markets could affect U.S. exports of goods and services, and diminish the competitiveness of U.S. businesses and workers in the global economy. Impacts could also affect both the domestic supply chain and the supply of imports to the United States, which the nation needs to fuel continued economic growth. Rising sea levels and increased storm activity could greatly disrupt, or even close, some of the Nation's seaports and airports. The International Trade Administration determined that such seaport disruptions would threaten economic growth by disrupting supply chains that U.S. companies rely on to produce and export their products to the world.

Concerns about the effects of climate change may increase consumer demand for sustainable products, adoption of more sustainable and environmentally-friendly business practices, and increased demand for clean energy. The Department can help turn this demand for clean energy and sustainable products and production pathways into a competitive advantage for U.S. manufacturers.

Climate change could affect supply chains that are dependent on natural resources such as water, timber, fishery, and agricultural products. For example, ocean acidification can lead to degradation of shellfish and shellfish industries. The Pacific Northwest experiences seasonal upwelling of deep ocean water with low oxygen and increased acidity in some of the coastal bays that are the nation's largest shellfish producers. In the past, two of the West Coast's major shellfish hatcheries experienced 80 percent declines in oyster larvae production. Larvae

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<sup>5</sup> CCSP, 2008: *Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: Gulf Coast Study, Phase I*. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [Savonis, M. J., V.R. Burkett, and J.R. Potter (eds.)]. Department of Transportation, Washington, DC.

<sup>6</sup> Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp.doi:10.7930/J0Z31WJ2.

production in the largest oyster-producing bay on the West Coast, where many growers rely on natural recruitment of oyster seed, failed to occur for six years. The interaction of these impacts on hatchery and natural seed recruitment resulted in about a 20 percent decline in West Coast oyster production over the past five years.<sup>7</sup>

Climate change will also reduce the Department's ability to foster and sustain healthy and resilient coastal communities and ecosystems, another key aspect of its mission. Climate-related changes on coasts and oceans include increasing ocean temperatures, changes in ocean circulation, changes in ocean productivity, loss of sea ice, rising sea levels, and increasing ocean acidification.<sup>8</sup> In addition, climate change impacts often exacerbate existing ecosystem stressors, such as overfishing, pollution, or habitat destruction.<sup>9</sup> These impacts threaten the National Oceanic and Atmospheric Administration's (NOAA) ability to manage the Nation's coastal and ocean resources and sustain the many important ecosystem services, jobs, and economic activity that these resources provide the Nation. For example, ecosystem services, such as seafood production and habitat-based tourism and recreation generate millions of jobs and billions of dollars in economic activity each year.<sup>10</sup> Healthy coral reefs, wetlands, mangroves, and other coastal habitats provide ecosystem services such as flood attenuation and buffering against storms and waves, playing a critical role in reducing costly storm and flood damage and protecting lives and property.<sup>11</sup> Low-lying coastal communities and infrastructure are vulnerable to the impacts of sea level rise and storm surge, including flooding, coastal erosion, and saltwater intrusion, among other impacts.

With a substantial portion of the U.S. gross domestic product directly influenced by weather and climate, managing weather- and climate-related risks and opportunities requires access to reliable, authoritative, and timely environmental information and services, as well as the capacity to apply this information in decision-making. The demand for climate information and services is increasing as individuals from diverse sectors (e.g., agriculture, water resource management, transportation) work to enhance resilience to climate variability and change. The Department, through its scientific and economic bureaus, is uniquely situated to develop and deliver these services to help the private sector, local, regional, tribal and state governments, and resource managers better prepare for and reduce their vulnerabilities to climate variability and change. For example, NOAA issues weather, water, and climate forecasts and warnings that provide accurate and timely information to local communities, reducing the loss of life, property damage, and disruptions to businesses and everyday life. The nation will rely even more on NOAA, and the Department, to provide climate information and services to prepare for extreme events, climate variability, and climate change.

The Department must prepare for potential climate risks and opportunities for it to have the capacity and expertise to execute its missions and maintain important services in the face of climate variability and change. To do so, the Department will integrate climate change

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<sup>7</sup> Bill Dewey. 2011. "Potential Impact of Ocean Acidification on West Coast Shellfish Aquaculture." American Fisheries Society presentation, Seattle, WA.

<sup>8</sup> National Research Council. 2011. *America's Climate Choices*. The National Academies Press. Washington, DC.

<sup>9</sup> Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

<sup>10</sup> National Ocean Economics Program. 2014. *State of the U.S. Ocean and Coastal Economies*. <http://www.OceanEconomics.org/nationalreport>

<sup>11</sup> Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds., 2014: *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

adaptation planning and actions into its operations, policies, and programs and adjust its business and governmental practices and processes, as appropriate. Adaptation is responsible risk management; it is good business practice for the Department to identify, manage, and plan for risks, including those related to climate change, in order to achieve its strategic goals, minimize future costs, avoid disruption, and continue providing the critical products and services on which our Nation's citizens depend.

### **III. Key Findings from Climate Change Vulnerability Assessment**

#### **A. Background on Climate Change Vulnerability Assessment**

As directed by the DAO, the Department conducted an assessment of its vulnerability to climate change during Summer 2011. The assessment helped the Department understand how it may be impacted by climate change and which impacts may cause the greatest challenges to its ability to achieve its mission and operational goals. Updates to this climate change vulnerability assessment are found below.

#### **DAO: Addressing the Impacts of Climate Change at the Department of Commerce in Operations and Programs**

The Order lays out six areas in which the Department is working to promote a more climate-resilient economy, society, and environment:

- Providing climate science and services to the Federal Government and other stakeholders, including the business community, the non-profit sector, and local, state, and tribal governments.
- Assisting other Federal agencies, local governments, regional entities, states, and Indian tribes in integrating climate information and resiliency into their near-term and long-term strategies and actions, including economic development and natural resources stewardship.
- Promoting the advancement of green growth to create market opportunities (both domestically and abroad), new businesses, advanced technologies, and quality jobs.
- Working with industry to develop areas of expertise that facilitate climate change management and adaptation services and create economic opportunities.
- Ensuring that Departmental policies, plans, and decisions anticipate and respond to current and projected climate impacts on our society, economies, and ecosystems.
- Strengthening scientific understanding of climate variability and change and developing advanced measurements, tools, and standards for environmental monitoring and decision support.

#### **B. Key Climate Change Vulnerabilities**

The key findings from the vulnerability assessment are summarized below. This is not an exhaustive examination of all of the Department's vulnerabilities to climate change, but rather highlights some of its most significant vulnerabilities. The climate change vulnerabilities have been updated as part of this current Adaptation Plan revision.

### **i. *Economic Growth***

Climate change will affect the Department's ability to foster U.S. competitiveness that drives new business development and creates quality jobs. As the Department develops tools, systems, policies, and technologies critical to transforming our economy, it will need to consider climate change so that these products and services will continue to promote a strong, resilient economy in a changing climate.

Sea level rise and extreme weather events caused by climate change could affect communication and transportation infrastructure, including ports, roads, and airports, as well as energy infrastructure such as oil and gas production. These impacts to infrastructure could increase the cost and time needed to manufacture, transport, and deliver goods. Negative climate change impacts on domestic and overseas markets could, in turn, affect U.S. exports of goods and services, and diminish the competitiveness of U.S. businesses and workers in the global economy. Both the domestic supply chain and the supply of imports to the United States, which the nation needs to fuel continued economic growth would also be affected by impaired infrastructure. In addition, industries, markets, and supply chains dependent on natural resources such as water, timber, fisheries, and agricultural products would be directly affected by changes in the availability of these resources due to climate change. For example, climate driven changes in marine ecosystems will present major challenges for sustaining and promoting U.S. fisheries, tourism, recreation and other marine resource-dependent industries and economies that contribute over \$200 billion annually to US economic activity, and affect international trade in a wide variety of seafood and marine products.

Climate change could also present several opportunities for U.S. companies and workers as the demand for clean energy and climate-friendly technologies increases. Many businesses in the United States and around the world and will be impacted by climate change. They will be challenged to employ new technologies and processes to help them adapt as well as develop new and innovative products to help others adapt, save energy, and be more sustainable.

The assessment noted that:

- Disruptions in ports, other transportation infrastructure, and supply chains would greatly impact the Department's ability to promote U.S. exports and drive economic growth.
- Climate change impacts on the Department's primary customer base, U.S. businesses, workers, and communities, would affect the Department's ability to foster business and economic development.
- Climate change impacts on U.S. businesses and communities will increase the interest in climate-friendly and green technologies to help them minimize their economic and business risks and to capitalize on new, entrepreneurial opportunities in a changing climate. The Department will need to be positioned to turn this interest in innovative, climate-friendly and green technologies into a competitive advantage for U.S. manufacturers and businesses.
- The increased demand for climate change adaptation-related technologies and the associated increase in patent application filings would impact the Department's ability to process such applications in a timely manner, having a direct impact on U.S. competitiveness and economic growth.

In order to continue to drive economic growth and ensure that U.S. businesses remain competitive, the Department will need to promote trade, economic and business development, innovation, entrepreneurship, accurate supply change information, best practices, standards, and performance metrics that consider climate change. The Department will also need to ensure it is positioned to help companies turn the emerging demand for climate-friendly technologies into a competitive advantage for U.S. manufactures and entrepreneurs.

## *ii. Science and Information*

The Department is home to three of the Nation's premier science and information agencies: the National Oceanic and Atmospheric Administration (NOAA), the National Institute for Science and Technology (NIST), and the Economics and Statistics Administration (ESA). The Nation relies on accurate and reliable scientific, economic, and demographic information provided by these agencies to make informed decisions and manage risk.

The Department has several main vulnerabilities regarding its ability to continue to generate and communicate new, cutting edge, scientific understanding of technical, economic, social, and environmental systems in a changing climate. Climate change will increase demand for the climate, weather, economic, ecological, and demographic data, as well as the information and services the Department provides. Specifically, the assessment noted:

- Governmental and nongovernmental entities and the private sector will look to the Department to provide a better understanding of climate variability and change and to develop advanced measurements and standards for environmental monitoring to assess how physical and biological processes may be altered by climate change to enhance weather, water, and climate reporting and forecasting.
- Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.
- The demand for Department-produced tools to help governmental and nongovernmental entities and the private sector transform this science and data into effective decision making that minimizes their risks to climate change will increase as more climate and other science and data becomes available.
- U.S. buildings, infrastructure, and communities have the potential to suffer catastrophic loss due to extreme climatic events such as hurricanes, tornadoes, wildfires, earthquakes, and flooding. At present, the necessary metrics, tools, and standards needed to ensure structural and community resilience do not exist to enable communities to recover rapidly from these disasters with minimal loss of life, damage to buildings and infrastructure lifelines, and disruption to commerce. The Department's measurement science work that underpins the development of standards, technology, codes and practices necessary for cost-effective improvements to the safety and security of buildings during natural disasters will address this gap through enhanced scientific knowledge that promotes innovation and technology, supports economic growth, and improves public safety.

NOAA, NIST, and ESA will need to continue to support and enhance their science, information, and services capabilities to meet the needs of Federal and non-Federal partners in a changing climate.

### *iii. Environmental Stewardship*

Environmental stewardship is a major mission of the Department which works to support climate change adaptation, develop sustainable and resilient fisheries, habitat and species, and support coastal communities that are environmentally and economically sustainable, among other stewardship objectives. Climate change will present new challenges to the Department's stewardship mission to ensure that our ocean and coastal species, habitat, ecosystems, maritime cultural resources, and communities are resilient and sustainable.

The Department has several key vulnerabilities regarding its ability to achieve its environmental stewardship mission. The assessment noted:

- Many climate change impacts such as rising sea levels, increased flooding, higher average air and water temperatures, increased droughts, storms, and ocean acidification, will transform and/or result in the direct loss of coastal habitats and directly affect coastal and marine ecosystems challenging the ability of the Department's existing natural resource management systems that are designed for relatively static conditions.
- Climate change may allow pathogens, parasites, and invasive species to flourish in new areas and spread more rapidly with possible cascading effects through marine and coastal ecosystems, also challenging the Department's existing natural resource management systems.
- Climate-driven changes in ocean and coastal conditions will impact the distribution and abundance of fish stocks and fisheries, increasing the demand for information, tools and actions that promote adaptation of marine resources and the industries/communities that depend on them. Many climate change impacts such as rising sea levels and increased extreme storm events will threaten coastal communities, placing lives and properties at risk, increasing the need for the Department to help these communities adapt to climate change so that they will be economically and environmentally sustainable.
- Climate-driven changes in ocean and coastal conditions will increase the demand for NOAA action for the protection and recovery of threatened and endangered species under the Endangered Species Act, Marine Mammal Protection Act, and other NOAA mandates.
- Climate-driven changes (such as in precipitation and temperature) will affect water supply and availability for communities and natural resources. These changes will have major impacts on the Department's environmental stewardship mandates and will significantly increase the demand for NOAA products and services needed by government and nongovernmental entities to prepare for and respond to changing water conditions (quantity and quality).

Clearly, the Department's ability to foster and sustain healthy and resilient coastal communities and ecosystems and manage the Nation's coastal and ocean resources to sustain jobs and economic activities will be challenged. The Department will need to adjust how it manages species, habitat, and ecosystems in a changing climate to achieve its environmental stewardship mission goals.

*iv. Infrastructure, Facilities, and Operations Management*

The Department and its twelve bureaus control facilities and infrastructure (personal and real property) across all fifty states, the territories, and overseas to facilitate the execution of its missions and operations. As a result of this geographical diversity, the Department's facilities and infrastructure could be vulnerable to the full range of climate change impacts. The assessment found that:

- All of the Department's facilities could be vulnerable to extreme weather events, including increased precipitation and extreme heat, which would increase the risk of flooding and increase cooling loads on building HVAC systems. The Department's coastal facilities could be vulnerable to rising sea levels as well as stronger and more frequent storms (e.g., hurricanes), while facilities in the Southwest could be vulnerable to increased wildfire risk. The Department's coastal facilities and infrastructure such as piers and warehouses could become inaccessible or unusable due to sea level rise, inundation, increased storms, and shoreline erosion.
- The availability of water, fuel, and other utilities needed at land-based facilities in support of NOAA ships and aircraft could be jeopardized due to increased demand caused by extreme weather events. Functionality of systems and equipment, e.g., cooling and heating, and electronics on NOAA platforms is at risk due to the potential for exceeding operating parameters and capacities designed for current weather conditions.

Six of the Department's bureaus own and operate their own facilities while the other bureaus use leased space managed by the General Services Administration (GSA). Therefore, while the Department will need to take steps to minimize the risk to its facilities and operations from climate variability and change, it will also need to coordinate closely with GSA to ensure all of the Department's facilities and infrastructure are resilient in a changing climate.

The Department has used existing funds and resources to identify and study the potential impacts of a changing climate on its real property inventory to the maximum extent practicable. Managing the effects of climate change and mitigation analysis and implementation can be expensive undertakings and funding is a key issue. Mitigation, for example, could involve relocation or extensive retrofit of a building that would require funding beyond that currently available.

**V. Five Year Strategic Goals for Adaptation Planning**

Over the next five years, the Department seeks to:

- Strengthen scientific understanding of climate variability and change and its impacts on physical, ecological, and socio-economic processes.
- Develop advanced measurements, tools, and standards for environmental monitoring, socio-economic statistics, and building design that consider climate change to ensure risk-management and other decisions are based on the best available science.
- Enhance tools and services for governmental and nongovernmental entities that will help them integrate climate information and resiliency into their near- and long-term strategies and actions, including those for economic development and natural resources stewardship.

- Promote the advancement of green growth to create market opportunities domestically and abroad, new businesses, advanced technologies, and quality jobs, that will increase our Nation’s resilience.
- Work with the private sector to develop areas of expertise that facilitate climate change management and adaptation services and create economic opportunities.
- Ensure that the Department’s resource management programs and policies incorporate climate change information and take action to reduce vulnerabilities and increase resilience of marine and coastal natural resources and the communities that depend on them.
- Ensure that the Department’s policies, plans, and decisions anticipate and respond to current and projected climate impacts on our society, economies, and ecosystems.

## VI. FY 2014 Adaptation Actions

The Department has identified the following priority adaptation actions to implement in FY 2014.

### A. Economic Growth

**Key Vulnerability/Opportunity:** *Climate change impacts on the Department’s primary customer base, U.S. businesses, workers, and communities, would affect the Department’s ability to foster business and economic development.*

#### **ACTION 1: Factor resiliency (including resiliency to the effects of climate change) into economic development investments.**

**Lead Office/Bureau:** EDA

**Scale:** National

**Implementation Method:** Leveraging the Comprehensive Strategy Content Guidelines and its leadership of the Economic Recovery Support Function of the National Disaster Recovery Framework (NDRF), the Economic Development Administration (EDA) will finalize internal guidance on how to factor resiliency (including resiliency to the effects of climate change) into its grant-making investment decisions.

#### **Key Milestones:**

- Finalize and disseminate Guidelines in conjunction with the release of new regulations. (Q4)
- Internal training to EDA’s regional offices on final guidance completed. (Q4)

**Metric:** Internal guidance on how to factor resiliency into its grant-making investment decisions is complete and EDA grant staff trained in its contents.

**Discussion:** EDA provides grant-based investments to units of state and local government and non-profits in communities and regions suffering from economic distress. These locally-driven economic development investments foster vibrant, regional economic ecosystems that promote collaboration, innovation, and job creation. EDA’s investments range from upfront strategic

economic development planning to public infrastructure construction. To ensure its funds are invested wisely and provide the greatest long-term benefit to communities, economic development plans or public infrastructure projects should be developed with future climate change projections in mind.

As an internal guidance document, there is no need for cross-agency coordination. However EDA does plan to leverage the experiences garnered through its engagement with the NDRF, which relied heavily upon interagency Federal collaboration. In addition, development of the Comprehensive Economic Development Strategy content guidelines, which will also inform the internal guidance, relied upon the engagement of a key segment of EDA's stakeholders (i.e., Economic Development Districts). No challenges are anticipated in the implementation of the guidance.

**Key Vulnerability/Opportunity:** *Climate change impacts on U.S. businesses and communities will increase the interest in climate-friendly and green technologies to help them minimize their economic and business risks and to capitalize on new, entrepreneurial opportunities in a changing climate. The Department will need to be positioned to turn this interest in innovative climate-friendly and green technologies into a competitive advantage for U.S. manufacturers and businesses.*

**ACTION 2: Help businesses capitalize on an increased demand for green technologies sparked by a changing climate.**

**Lead Office/Bureau:** ITA

**Scale:** International

**Implementation Method:** The International Trade Administration (ITA) will continue to work closely with the Secretary's Renewable Energy and Energy Efficiency Advisory Committee, the Civil Nuclear Trade Advisory Committee, the Environmental Technologies Trade Advisory Committee, other industry stakeholders and U.S. Government trade agencies to implement the Renewable Energy and Energy Efficiency Export Initiative and the Civil Nuclear Trade Initiative to (1) accelerate interagency efforts to expand and improve the types of services and programs supporting these industries, (2) enhance market access overseas and intellectual property rights enforcement, (3) strengthen and tailor trade promotion efforts in these sectors, and (4) develop export markets for U.S. companies by helping trade partners establish policies and regulations that create optimal conditions for deployment of these technologies.

**Key Milestones:**

- Recharter the Secretary's Renewable Energy and Energy Efficiency Advisory Committee, the Civil Nuclear Trade Advisory Committee, and the Environmental Technologies Trade Advisory Committee. (Q4)

**Metric:** Increase both the value of U.S. exports of climate-friendly technologies and the market shares U.S. firms in that sector have in foreign markets.

**Discussion:** Promoting the development, production, and deployment of green technologies, including ones that promote renewable energy and energy efficiency and environmental stewardship, that will enable businesses to capitalize on new entrepreneurial opportunities in a changing climate, is a high priority for the Department. As the lead export promotion agency for the Federal Government, ITA developed two major interagency initiatives to support U.S. exporters of clean energy without any additional resources: The Civil Nuclear Trade Initiative, the Environmental Export Initiative and the Renewable Energy and Energy Efficiency Initiative. ITA worked with interagency groups to ensure Federal programs designed to promote clean energy and environmental technologies are efficient and effective, as well as help U.S.-based firms become increasingly competitive in the global market. These programs are already helping ITA and the Department, as well as other USG agencies, help businesses take advantage of economic opportunities in clean energy and ITA will continue to promote these programs in FY 2014. As global opportunities for renewable energy continue to grow around the world, an increasing number of governments are putting distorting policies in place to favor domestic

production and to develop their own renewable energy domestic industry as a hub for the region. One of the key factors in whether or not the U.S. renewable energy industry will be globally competitive depends on the extent to which there is a U.S. market for such technologies.

**Key Vulnerability/Opportunity:** *The increased demand for climate change adaptation-related technologies and the associated increase in patent application filings would impact the Department's ability to process such applications in a timely manner, having a direct impact on U.S. competitiveness and economic growth.*

**ACTION 3: Improve the ability to process patent application filings for climate change adaptation-related technologies in a timely manner.**

**Lead Office/Bureau:** USPTO

**Scale:** National

**Implementation Method:** The U.S. Patent and Trademark Office (USPTO) continues to implement its Patent Prosecution Highway (PPH) and “Track 1” prioritized examination programs to provide opportunities for fast-tracked examination of patent applications for adaptation-related and other green technologies. Each of these programs is available upon request from applicants, provided they meet the prescribed requirements, follow the prescribed procedures, and pay any necessary fees. The programs are administered through existing fast-track examination processes at the USPTO.

**Metric:** The “Track 1” goal is to receive 10,000 applications per year; the PPH goal for CY 2014 is to receive 32,000 cumulative requests by end of year.

**Discussion:** The PPH permits an applicant to fast track examination of a patent application at the USPTO when a partner office that is examining a patent application determines that the claims in a corresponding foreign patent application are patentable. Through the PPH, applicants can substantially reduce the amount of time they ordinarily must wait to obtain a patent. The PPH also allows the USPTO to leverage work already done by another office in examining the same invention, thus helping to reduce duplication of work and to increase USPTO processing efficiency. To date, the PPH has produced efficiency gains of approximately a full production unit (a reflection of the efficiency of patent examiners) per application. In addition, the PPH allowance rate, the percentage of applications determined to be patentable, is approximately double the overall USPTO allowance rate. Both metrics translate into thousands of dollars of potential cost savings for applicants from using the PPH. In 2014, the USPTO launched updated PPH pilots with 17 global partners to further streamline the PPH process for users of the program in applicable countries. The USPTO currently has PPH programs in place with 28 other patent offices around the world, representing dozens of major U.S. trading partner countries.

The “Track 1” program expedites the examination of patent applications related to green and other technologies, within existing resources and processes, to reduce the time it takes to patent these technologies to an average of one year. As with the PPH, earlier patenting enables inventors to secure funding, create businesses, and bring vital green technologies into use much sooner.

## B. Science and Information

**Key Vulnerability/Opportunity:** *Governmental and nongovernmental entities and the private sector will look to the Department to provide a better understanding of climate variability and change and to develop advanced measurements and standards for environmental monitoring to assess how physical and biological processes may be altered by climate change to enhance weather, water, and climate reporting and forecasting.*

**Key Vulnerability/Opportunity:** *Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.*

**ACTION 4: Continue coordinating climate and related ecological research and services partnerships within the Department and with Department partners to better understand climate variability and change and how climate variability and change will affect communities and ecological processes.**

**Lead Office/Bureau:** NOAA

**Scale:** National

**Implementation Method:** NOAA will continue to coordinate climate and related ecological research and services partnerships within the Department and with Department partners to better understand how climate variability and change will affect communities, cultural resources, and ecological processes. As part of this effort, NOAA will continue to host regional outlook forums where useful and appropriate. These forums serve as processes to communicate what we know and understand about regional climate and the potential implications of extreme events such as floods and droughts. A central focus of the forums is to increase engagement emergency managers, natural resource managers and other interested practitioners and the public. The forums will also serve to help connect a range of other federal, state, tribal, and private interests in shared understanding of potential vulnerabilities and risks and options for response.

### **Key Milestones:**

- Regional climate impacts and outlooks (products that describe recent and present conditions, impacts and projected climate events) will be produced on a quarterly basis for the Eastern, Western, Central, Great Lakes, Missouri River, Alaska, and Pacific (all Qs)
- Regional outlook forums will also be convened to supplement the regional outlooks and improve the network of partners that will contribute and use the information. The number and location of the forums will be contingent on emergent events (e.g., droughts, floods, wildfires) and where opportunities to improve regional collaboration exist. (all Qs)

**Metric:** Delivery of a Regional Climate Outlook product for each NOAA region on a quarterly basis.

**Discussion:** Effective coordination across federal, state, tribal, and local partners will be critical for this action. NOAA will use the National Integrated Drought Information System (NIDIS) Act of 2006 (P.L. 430-109), the NOAA-Western Governors' Association MOU, and the DOC-DOI MOU on climate-related activities as requirements to help establish critical links to other agencies.

The activities will be supported through existing programs and from leveraging existing partnerships with the NOAA RISAs, the Regional Climate Centers, the State Climatologists, National Weather Service Regional offices and Weather Forecast Offices in addition to existing partnerships with federal, tribal, state, and local agencies.

Ongoing projects consistent with action four include NIDIS and the development of regional drought early warning information systems and the networks and partnerships the NOAA Regional Climate Services Directors are developing. Regional outlook forums are only one mechanism NOAA may use to facilitate regional engagement; webinars and feedback sessions are other types.

**Key Vulnerability/Opportunity:** *The demand for Department-produced tools to help governmental and nongovernmental entities and the private sector transform this science and data into effective decision making that minimizes their risks to climate change will increase as more climate and other science and data becomes available.*

**ACTION 5: Develop frameworks and tools to help local coral reef managers incorporate climate change information into effective decision making that minimizes their risks to climate change.**

**Lead Office/Bureau:** NOAA

**Scale:** Regional

**Implementation Method:** NOAA is working to provide coral reef managers with frameworks and tools to incorporate climate change into decision making through two projects. An exploration of frameworks and methodologies for climate change adaptation planning for coral reef management has begun as a collaborative project through the Climate Change Working Group of the US Coral Reef Task Force. The project will: review recent advances in assessment and planning for climate change by coral reef practitioners, and use this information to tailor recent theoretical adaptation methods into a form that is more useful for coral reef management. This effort is co-led by NOAA and EPA and taps into the expertise of the 14 federal agency members of the USCRTF, the Nature Conservancy, the Australia Great Barrier Reef Marine Park Authority, academic partners and local natural resource agencies in the US States, Territories and Jurisdictions with coral reef resources. The NOAA Coral Reef Conservation Program is funding and leveraging activities to advance field and desktop methodologies for assessing resilience and develop the analytical and legal frameworks that can ensure resilience to climate change is increasingly included in coral reef management and conservation decisions. The work focuses on informing resilience assessments with data and products, refining frameworks for assessing resilience, employing these methods in different geographies and at different scales. The goal is

to provide information to management partners on how to quantify the relative resilience of their coral reefs, understand what non-climate stressors are increasing reef vulnerability and then use that information to identify and prioritize management actions that can increase or maintain resilience. The portfolio of work involves many NOAA Offices and Programs, The Nature Conservancy, USGS, state and territorial governments and agencies, the Australia Great Barrier Reef Marine Park Authority, academic institutions, the Stockholm Resilience Center and the Oceans Tipping Point Project. The outcomes and lessons learned from this work will be communicated to not only our management partners but to the larger global community working on these questions.

**Key Milestones:**

- Develop component of the new Climate Smart Conservation framework tailored to coral reef adaptation planning in the Pacific. (Q4)
- Test methodology at a stakeholder workshop in the Pacific and apply lessons learned to transfer the framework to other regions. (Q4)
- Resilience assessments have already been completed around Saipan, and will be completed for Rota and Tinian. (Q3)
- Support partnerships and grants to complete assessments in the US Virgin Islands and potentially in West Maui. (Q3)
- Develop data and information products to inform assessments. (FY15)

**Discussion:** Providing frameworks and tools to incorporate climate change into coral reef management is one example of how NOAA is supporting local decision makers minimize their risk from climate change. The management implications of this body of work have great potential – the ability to quickly prioritize areas of reef for action, to target actions to decrease the vulnerability of reefs, and to incorporate adaptation planning into management planning.

**Key Vulnerability/Opportunity:** *U.S. buildings, infrastructure, and communities have the potential to suffer catastrophic loss due to extreme climatic events . . . [T]he necessary metrics, tools, and standards needed to ensure structural and community resilience do not exist to enable communities to recover rapidly from these disasters with minimal loss of life, damage to buildings and infrastructure lifelines, and disruption to commerce. The Department’s measurement science work underpins the development of standards, technology, and practices needed for cost-effective improvements to the safety and security of buildings during natural disasters will address this gap by enhancing scientific knowledge to improve innovation and technology, support economic growth and improve public safety.*

**ACTION 6: Develop performance-based standards and tools for new and retrofit building designs resistant to extremes of wind, storm surge, and fire that prevent or mitigate collapse.**

**Lead Office/Bureau:** NIST

**Scale:** National

**Implementation Method:** The National Institute for Standards and Technology (NIST) will continue its program in measurement science to: (1) predict structural performance to failure under extreme loading conditions; (2) predict disaster resilience at the building and community

scale; (3) assess and evaluate the ability of existing structures to withstand extreme loads; (4) design new buildings and retrofit existing buildings using cost-effective, performance-based methods; and (5) derive lessons learned from disasters and failures involving structures.

**Key Milestones:**

- NIST will convene stakeholders from other Federal Agencies, State and local governments, the building industry, insurance providers, code councils, etc. to develop a comprehensive, community-based resilience framework and provide guidelines for consistently safe buildings and infrastructure. (Q3 and Q4) (Q4)

**Metric:** Completed resilience framework and guidelines for consistently safe buildings and infrastructure.

**Discussion:** Natural and manmade disasters currently cause an estimated \$57B in average annual costs. Increased extreme weather events due to climate change have the potential to cause losses exceeding \$100 billion. NIST is at the forefront of developing measurement tools and standards to help scientists monitor the environment, as well as for industry to create and implement climate friendly technologies and standards. NIST programs focused on disaster resilient structures are developing the measurement science that underpins the development of standards, technology, and practices needed for cost-effective improvements to the safety and security of buildings. These programs will help to mitigate structural failures that arise from earthquakes, fires, windstorms (hurricanes, tornadoes, storm surge), blast, and impact. Knowledge from these efforts can improve next generation construction standards, codes, and practices to substantially improve the resilience of structures to changes in the frequency of windstorms associated with multi-hazard events forecast to occur with increasing frequency due to climate changes.

There are a number of key stakeholder groups with interest in the outcomes of this program. At-risk communities and the American public are key stakeholders and beneficiaries. Government at all levels, responsible for pre-disaster mitigation and for response, recovery, and rebuilding in the aftermath of catastrophic disasters, will also have a keen interest in the products of this research. Design and construction practitioners, facility owners and operators, standards and codes developers, state and local building officials, and property risk insurers will all benefit. Impacts already achieved by the program include the 40 model building and fire code changes made to be consistent with the NIST World Trade Center (WTC) investigation recommendations now required by the International Code Council's (ICC) I-Codes. Similarly, the National Fire Protection Association (NFPA) has adopted 15 changes responsive to the WTC Recommendations for inclusion in the 2009 Editions of the NFPA 5000 Building Code, NFPA 1 Fire Code, and NFPA 101 Life Safety Code.

**Key Vulnerabilities/Opportunities:** *Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.*

## **ACTION 7: Understand and prepare for ocean acidification**

**Lead Office/Bureau:** NOAA

**Scale:** National

**Implementation Method:** NOAA will continue to lead inter-governmental efforts to design and implement ocean acidification monitoring and research programs to track and project impacts on shellfish, fish stocks and other marine resources. With the Interagency Working Group on Ocean Acidification, (NOAA, BOEM, EPA, FWS, NASA, NSF, Navy, State, USDA, USGS), NOAA will develop and implement new monitoring technology, new experimental facilities and research to study the biological impacts of ocean acidification. NOAA also will continue to work with state and tribal governments, industry, academic institutions, museums, aquariums, and non-governmental organizations to raise awareness about ocean acidification and establish feasible solutions for resilience, adaptation and mitigation.

### **Key Milestones:**

- With the Interagency Working Group on Ocean Acidification, NOAA will develop and implement one new monitoring technology, one new experimental facility and one research project to study the biological impacts of ocean acidification. (Q4)
- NOAA will continue to work with state and tribal governments, industry, academic institutions, museums, aquariums, and non-governmental organizations to raise awareness about ocean acidification and establish feasible solutions for resilience, adaptation and mitigation. (All Q)

**Metric:** Complete one research project.

**Discussion:** Ocean acidification is a major threat to marine resources and the people, industries and economies that depend on them. Information is needed on where and when acidification currently is happening, what impacts it is having now, and what the future impacts might be on fisheries, coral reef systems, and coastal ecosystem productivity and resource-dependent communities.

**Key Vulnerabilities/Opportunities:** *Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.*

*The demand for Department-produced tools to help governmental and nongovernmental entities and the private sector transform this science and data into effective decision making that minimizes their risks to climate change will increase as more climate and other science and data becomes available.*

## **ACTION 8: Supporting Decisions through the National Integrated Drought Information System (NIDIS)**

**Lead Office/Bureau:** NOAA

**Scale:** National, Regional

**Implementation Method:** NOAA will continue to lead the implementation of NIDIS, an interagency partnership (USDA, DoE, DHS, DoI, DoT, EPA, USACE, FCA, FERC, IRS, USITC, NASA, SBA, HHS, and CDC) that works toward collaboration on monitoring, research, data, and communication of drought related information. The drought related tools and resources produced through NIDIS inform decision-makers at the federal, state, tribal, and local levels.

### **Key Milestones:**

- Participate in the development of the cross-agency National Drought Resilience Partnership (NDRP) (co-lead by NOAA and USDA under the PCAP) through the provision of relevant resources and tools (e.g. outlooks, soil moisture network, drought.gov, etc.) (Q4)
- Develop the Regional Drought Early Warning System (RDEWS) for the Pacific Northwest, the Midwest Agricultural belt, the Southern Plains states, and the Carolinas, as well as enhance drought planning in California.

**Metric:** The number of states, and territories working with NIDIS to incorporate drought early warning information into their drought adaptation and mitigation plans.

**Discussion:** The National Drought Resilience Partnership, part of the President's Climate Action Plan (PCAP), aims to foster interagency collaboration and help communities better prepare for the impacts of drought through increased access to federal drought related resources and information. In its first year the NDRP will focus on several key activities to improve decision maker access to drought tools and resources and NIDIS will partner in these efforts.

**Key Vulnerability/Opportunity:** *The demand for Department-produced tools to help governmental and nongovernmental entities and the private sector integrate this science and data into effective decision making that minimizes their risks to climate change will increase as more climate and other science and data become available.*

**Key Vulnerability/Opportunity:** *Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.*

**ACTION 9: Support adaptation decisions with climate data, forecasts, and tools in order for the Nation to better respond to extreme weather and water events.**

**Lead Office/Bureau:** NOAA

**Scale:** National

**Implementation Method:** NOAA will continue to provide “actionable science” to support climate change adaptation decisions. NOAA will engage the Department and Department partners to discuss, assess, and act on improving products and services that (a) communicate risks of extreme weather and water events; (b) provide timely information for climate adaptation planning; (c) increase usability of products and services; and (d) provide easy access to data, maps, and analyses.

**Key Milestones:**

- Develop an operational National Multi-Model Ensemble (NMME) (FY15 Q4)
- Develop NMME-based US Drought Outlook guidance (Q1)
- Migrate the Climate Prediction Center (CPC) GIS operational services to the National Centers for Environmental Prediction (NCEP) Central Processing (Q4)
- Develop user-friendly NWS climate web interface and tools (FY15 Q4)
- Develop common communication approaches for extreme temperature warning, enhanced data exchange opportunities, and experimental products (FY15 Q4)
- Develop decision support training activities (FY15 Q4)

**Metric:** Deliver enhanced climate products and services

**Discussion:** The President’s Climate Action Plan, released in June 2013, calls for “actionable science” – that is, the type of scientific information that people can use to take the appropriate actions to reduce their vulnerability to climate change and to enable them to participate in those that reduce the emissions (CO<sub>2</sub>) that drive climate change around the world. This actionable scientific information is especially important to the Nation’s resiliency and the connections or links that can have a ripple effect across climate change impact areas.

Reports, such as the recently-released National Climate Assessment, are indicating that climate change a) impacts to our Nation are happening now (especially evident in the area of public health); b) is “not a distant threat”; and c) “is not the same everywhere” – there are regional effects with different impacts in different parts of the country. In order for the Nation to face such concerns and to make the best climate change adaptation decisions, NOAA is suited to provide scientific guidance that is meaningful, understandable, available, and reliable, so that the resulting impacts/risks can be the least risky and costly while, at the same time, offering the biggest “bang for the buck” into the future.

***Key Vulnerability/Opportunity:*** *Governmental and nongovernmental entities and the private sector will look to the Department to provide a better understanding of climate variability and change and to develop advanced measurements and standards for environmental monitoring to assess how physical and biological processes may be altered by climate change to enhance weather, water, and climate reporting and forecasting.*

**Key Vulnerability/Opportunity:** *Government and nongovernmental entities and the private sector will need accurate ecological, economic, social, and demographic data from the Department that considers potential effects of climate change so that they can effectively assess their own vulnerabilities and be prepared for the changes that climate change may bring to improve our understanding of the U.S. economy, society, and environment in order to make informed decisions.*

**ACTION 10: Develop climate change adaptation decision-support information for the Arctic region.**

**Lead Office/Bureau:** NOAA

**Scale:** National

**Implementation Method:** NOAA will provide climate data and forecasts to those making climate change adaptation decisions related to the Arctic region.

**Key Milestones:**

- Provide enhanced availability to Arctic products through the CPC website (Q3)
- Incorporate capability to access Arctic climate-related data into the Local Climate Analysis Tool (LCAT) for regional analysis (FY15 Q4)
- Explore opportunities for an experimental combined Weeks 3-4 Temperature and Precipitation Outlook (FY15 Q4)
- Upgrade Climate Forecast System Reanalysis sea ice initial conditions with Panarctic Ice Ocean Modeling and Assimilation System (PIOMAS) data from the University of Washington (Q4)

**Metric:** Produce new and enhanced Arctic regional climate products and services.

**Discussion:** Impacts of climate change in the Arctic region are manifested through events such as significant sea ice reduction, lessening coastal sea-ice accumulations, and increased melting of the permafrost. Various sectors of the Nation will need the best available climate guidance, including forecasts and data analysis tools, in order to address such climate change adaptation issues. NOAA, as a primary source of climate expertise and information, would be the logical choice to provide this information for users in Alaska including government (at Federal, state, local, and tribal levels), industry, fisheries, and others.

## C. Environmental Stewardship

**Key Vulnerability/Opportunity:** *Many climate change impacts such as rising sea levels, increased flooding, higher average air and water temperatures, increased droughts, and ocean acidification, will transform and/or result in the direct loss of coastal habitats and directly affect the coastal and marine ecosystems challenging the ability of the Department's existing natural resource management systems that are designed for relatively static conditions.*

**ACTION 11: Continue developing networks of sentinel sites to coordinate assets and efforts to increase understanding of, and better respond to, sea level change impacts on coastal ecosystems and surrounding communities.**

**Lead Office/Bureau:** NOAA

**Scale:** Regional (San Francisco, Hawaii, North Carolina, Chesapeake Bay, and northern Gulf of Mexico)

**Implementation Method:** NOAA will continue to develop networks of sentinel sites to better understand and respond to sea level change. NOAA will continue to work with local area partners in San Francisco, Hawaii, North Carolina, Chesapeake Bay, and northern Gulf of Mexico, leveraging existing NOAA assets, programs and resources, to develop five Sentinel Site Cooperatives. NOAA will also work with the cooperatives to develop sea-level rise decision-making tools, products, and services, leveraging existing assets, programs and resources.

**Key Milestones:**

- Contribute 3-5 products to each Sentinel Site Cooperative's efforts as identified in the Cooperative implementation plans. (Q4)

**Metric:** Forty-three percent of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards.

**Discussion:** Sentinel Site Cooperatives are fundamentally places where integrated observations lead to greater understanding that allows NOAA to predict the types and magnitude of consequences of different phenomena. That data and information is then transferred to decision makers through models, predictions, visualization tools, education, outreach, and training. This full range of integrated science, service, and stewardship activities informs decisions related to NOAA Trust Resources, protection of coastal infrastructure, community planning, or event response. In this way, NOAA can more fully meet the expectations and needs of populations that depend on, live near, or care about the ocean. Close collaboration with Federal partners, state agencies, NGOs and academia will be paramount to the success of this program.

**Key Vulnerability/Opportunity:** *Climate-driven changes in ocean and coastal conditions will impact the distribution and abundance of fish stocks and fisheries, increasing the demand for information, tools and actions that promote adaptation of marine resources and the industries/communities that depend on them.*

**ACTION 12: Track and assess climate-related impacts on U.S. marine ecosystems and the distribution of major fish stocks.**

**Lead Office/Bureau:** NOAA

**Scale:** Regional

**Implementation Method:** NOAA will continue efforts to monitor key indicators of marine ecosystem conditions and assess climate-related impacts on ecosystem conditions and the distribution of fish stocks to provide resource managers and resource-dependent industries/communities with early warnings of changing conditions. This effort depends on a variety of observation systems and monitoring efforts (e.g., in-situ monitoring stations, ship/aerial surveys, satellite-derived data) to collect information on key indicators of ecosystem condition. This information is then synthesized into ecosystem status reports that provide annual assessments of ecosystem conditions and climate-related impacts. This information needed/used to improve fish stock assessments, harvest levels, and recovery plans.

**Key Milestones:**

- Monitor key indicators of ecosystem condition and complete ecosystem status reports in three regions (Northeast, Alaska, Pacific Coast) (Q4).
- Complete prototype system for assessing climate-related shifts in the distribution of major fish stocks in U.S. marine ecosystems (Q4)

**Metric:** 50% of US marine ecosystems have operational systems for tracking and assessing status of key ecosystem indicators annually.

**Discussion:** NOAA and partners will continue to develop and implement systems to monitor, track and assess climate-related impacts on the conditions of 3 US marine regions. These systems provide managers with early warnings of climate-related changes in marine ecosystem conditions for use in marine resource management decisions. It is also useful for planning by resource-dependent industries (e.g., fisheries, recreation, tourism). This information is essential for developing management actions that promote resilience and adaptation of marine and coastal fisheries, protected species and the communities that depend on them. This effort includes identification and monitoring of core indicators of climate impacts on marine ecosystem condition, and using this information to deliver regular status reports on ecosystem conditions for use in marine resource management.

***Key Vulnerability/Opportunity:*** *Climate-driven changes in ocean and coastal conditions will impact the distribution and abundance of fish stocks and fisheries, increasing the demand for information, tools and actions that promote adaptation of marine resources and the industries/communities that depend on them.*

**ACTION 13: Assess the climate vulnerability and resilience of fish stocks and fishing communities.**

**Lead Office/Bureau:** NOAA

**Scale:** Regional

**Implementation Method:** The first step in climate adaptation is understanding the vulnerability to climate impacts. NOAA Fisheries will complete the first methodology for rapid assessment of the vulnerability of the nation's major fish stocks in a changing climate, and launch assessment of fish stock climate vulnerability US marine regions. NOAA Fisheries will also continue development of social indicators of vulnerability and resilience of resource-dependent coastal communities along the US East and Gulf coasts. These indicators identify vulnerable populations and communities reliant and engaged in fisheries for use in fishery management plans. If resources are available, planned expansion of these indicators in FY15 will include new indices that measure risks from coastal hazards, projected climate-related changes in fish stocks, as well as factors.

**Key Milestones:**

- Complete assessment of climate vulnerability of major fish stocks in the Northeast region. (Q3)
- Complete development of social indicators of vulnerability of fishing communities for all US regions. (Q4)

**Metric:** Complete 1 of 5 regional rapid assessments of fish stock climate vulnerability; Complete social vulnerability indicators for fishing communities in all regions.

**Discussion:** These efforts will significantly advance the ability to evaluate the vulnerability of US fish stocks and fishing communities in all U.S. regions to help resource managers and resource-dependent communities design and implement action to reduce risks and increase resilience.

***Key Vulnerability/Opportunity:** Climate-driven changes in ocean and coastal conditions will impact the distribution and abundance of fish stocks and fisheries, increasing the demand for information, tools and actions that promote adaptation of marine resources and the industries/communities that depend on them.*

**ACTION 14: Increase understanding of current and future climate impacts on living marine resources**

**Lead Office/Bureau:** NOAA

**Scale:** Regional

**Implementation Method:** Working with a variety of partners, NOAA will implement five key projects that increase understanding of current and future climate impacts on ocean and coastal resources (fish stocks, protected species) to help resource managers and the people that depend on them take action to increase resilience and adaptation in a changing climate.

**Key Milestones:**

- Launch new initiative to better understand current and future climate impacts on groundfish of the Northeast Atlantic marine ecosystem. (Q4)
- Continue efforts to understand current and future climate impacts on the California Current Large Marine Ecosystem and its important marine resources. (Q4)
- Continue efforts to understand current and future climate impacts on the Bering Sea Marine Ecosystem and its important marine resources.
- Launch new initiative to develop and test shorter-term forecasts of climate-related impacts on marine ecosystems. (Q4)
- Complete initial results of study to assess current and future climate impacts on Bluefin Tuna and other pelagic fish stocks in the Gulf of Mexico. (Q4)

**Metric:** Successful implementation of all five projects.

**Discussion:** By advancing understanding of current and possible future climate impacts on these marine ecosystems/resources, these efforts will enable marine resource managers to better design and implement actions that increase resiliency and adaptation of important marine resources and the communities that depend on them.

**Key Vulnerability/Opportunity:** *Many climate change impacts such as rising sea levels and increased extreme storm events will threaten coastal communities, placing lives and properties at risk, increasing the need for the Department to help these communities adapt to climate change so that they will be economically and environmentally sustainable.*

**ACTION 15: Provide training to coastal communities to build their capacity to adapt to climate change.**

**Lead Office/Bureau:** NOAA

**Scale:** National

**Implementation Method:** NOAA will provide “Roadmap for Adapting to Coastal Risk,” “Climate Adaptation for Coastal Communities,” “Coastal Inundation Mapping,” and “Introducing Green Infrastructure for Coastal Resilience” trainings. NOAA will partner with the Federal Emergency Management Agency’s National Disaster Preparedness Training Center to deliver trainings on Tsunami Awareness and Coastal Community Resilience. NOAA will offer climate adaptation and resilience-related webinars and support for user meetings. Webinar examples include “Mapping and Visualizing Sea Level Rise,” “Marshes on the Move: a Manager’s Guide to Understanding and Using Model results Depicting Potential Sea Level Rise Impacts on Coastal Wetlands,” and “Coastal County Snapshots.” User meetings include regional climate communities of practice and resilience planning groups. Through these activities, communities are made aware of, and gain skill with the resources that can help them assess and plan for hazard and climate change impacts.

**Key Milestones:**

- Develop, enhance or expand resilience assessment and planning data and tools and notify local users of availability for 50 coastal counties. (all Qs)

- Continued execution of the National Estuarine Research Reserve System (NERRS) Climate Adaptation Training. (all Qs)
- Develop data maps for 32 coastal counties for the coastal flood risk mapper. (Q4)
- Provide 100 coastal counties with tech assistance in the use of resilience assessment and planning data and tools. (all Qs)

**Metric:** Forty-three percent of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards; 75 counties benefiting from climate adaptation and resilience-related training; 150 coastal counties benefiting from climate adaptation and resilience learning opportunities.

**Discussion:** NOAA will work with partners to identify relevant communities in need of training to allow them to assess and plan for hazard and climate change impacts. Training needs assessments are often conducted prior to developing new trainings. When technical assistance is provided alongside a product or training, a community is more likely to use what they learn. Technical assistance will help identify resources that are most relevant to assessment and planning activities. Some trainings may be provided by webinar to accommodate constrained travel budgets.

**Key Vulnerability/Opportunity:** *Climate-driven changes in ocean and coastal conditions will increase the demand for NOAA action for the protection and recovery of threatened and endangered species and the conservation of ocean and coastal protected areas.*

**ACTION 16: Enhance climate resilience of endangered corals**

**Lead Office/Bureau:** NOAA

**Scale:** Regional (SE, Caribbean)

**Implementation Method:** This program will advance innovative coral propagation activities to help increase the recovery and resiliency of endangered coral species in the SE and Caribbean. The goal is to establish a network of climate resilient coral populations that are physically connected and able to aid in natural species recovery through successful reproduction. This effort will help coordinate and advance a variety of disparate coral propagation and conservation activities into more effective coral population enhancement efforts. By promoting successful reproduction of resilient and genetically diverse coral colonies, the program will help increase the overall abundance and climate resilience of coral species and valuable reef habitats. The major product will be a comprehensive Management Plan for Coral Population Enhancement Activities due in FY15. The Management Plan will integrate population enhancement efforts with resilience planning, regional priorities, marine protected area planning/zoning, recovery actions, demographic monitoring, and core species science. Planning will help identification, prioritization, and funding of new sites, research gaps, and methods development.

**Key Milestones:**

- Complete draft content for the comprehensive Management Plan for Coral Population Enhancement Activities (Q4)

**Metric:** Complete the comprehensive Management Plan for Coral Population Enhancement Activities (FY15).

**Discussion:** ESA-listed corals are essential to recovery of Caribbean reefs and provide many services including shoreline protection and structurally complex habitat for commercially harvested seafood. High abundance and genetic diversity contribute to coral resilience because they increase the likelihood of successful reproduction, which is important for adaptation to changing environmental conditions. By advancing the resilience of ESA-listed coral species, this program will also help increase the resilience of many other species that depend on coral reefs, (including 50 percent of federally managed US fisheries that depend on coral reefs as part of their life cycle), and the communities that depend on coral reefs for jobs, food and protection from storms.

**Key Vulnerability/Opportunity:** *Climate-driven changes in ocean and coastal conditions will increase the demand for NOAA action for the protection and recovery of threatened and endangered species and the conservation of ocean and coastal protected areas.*

**Key Vulnerability/Opportunity:** *Climate-driven changes (such as in precipitation and temperature) will affect water supply and availability for communities and natural resources. These changes will have major impacts on the Department's environmental stewardship mandates and will significantly increase the demand for NOAA products and services needed by government and nongovernmental entities to prepare for and respond to changing water conditions (quantity and quality).*

### **ACTION 17: Climate-ready protection and recovery of Pacific Northwest salmon and other riverine-dependent species - Projecting Climate Impacts and Designing Resilient Salmon Restoration Projects**

**Lead Office/Bureau:** NOAA

**Scale:** Regional (PacNW)

**Implementation Method:** This is a program of action involving a variety of research, modeling, assessment and decision-support activities by NOAA's Northwest Fisheries Science Center to produce and deliver better information on the vulnerabilities of salmon and other protected species to climate change, and use this information in planning for recovery of endangered species. This program of action will provide a variety of research and decision support products including (1) state-of-the-art projections of future climate impacts on salmon in both their river and ocean habitats, (2) synthesis of how climate change will affect habitat restoration efforts for protected salmon and other NOAA trust resources, (3) guidance on adapting river restoration plans and project designs to accommodate climate change, and (4) expert assistance to help NOAA constituents implement climate-smart restoration of riverine habitats for these river-dependent species.

**Key Milestones:**

- Complete designs for resilient salmon habitat restoration projects (Q4)

- Provide expert guidance to Washington Department of Natural Resources and other partners on climate adaptation strategies and actions protected species and riverine habitats (Q4)
- Launch development of climate-impact models for Snake River spring/summer Chinook salmon exploring 20 freshwater climate change scenarios, five ocean climate change scenarios, and two hydrosystem scenarios needed to design and implement management actions that build resilience and adaptation of these riverine-dependent protected species (Q4).
- Evaluate climate change and hydrosystem scenarios for the Columbia River system to inform the Federal Columbia River Power System (FCRPS) Biological Opinion 2014 Supplement and Adaptive Management Implementation Plan (Q4)

**Metric:** 100% completion of major products and services listed above.

**Discussion:** This program of action will significantly advance efforts to design and implement climate-ready conservation efforts for salmon and other riverine-dependent protected species in the Pacific Northwest. It will improve the resilience and adaptation of salmon, other riverine species and the people/economies that depend on them. The key elements of this work are (1) identifying habitat restoration actions that are robust to climate variation and alternative climate scenarios, (2) identifying habitat restoration actions that increase ecosystem resilience (3) a decision support framework that guides restoration practitioners through a planning process for adapting endangered species recovery plans for climate change, and (4) outreach efforts to communicate these products and assist in their implementation

**Key Vulnerabilities/Opportunities:** *Many climate change impacts such as rising sea levels, increased flooding, higher average air and water temperatures, increased droughts, and ocean acidification, will transform and/or result in the direct loss of coastal habitats and directly affect the coastal and marine ecosystems challenging the ability of the Department's existing natural resource management systems that are designed for relatively static conditions.*

**ACTION 18:** Inform and advance the use of natural and nature-based infrastructure for coastal resilience, including through increased understanding of the value of the ecosystem services and benefits provided.

**Lead Office/Bureau:** NOAA

**Scale:** National, Regional (Great Lakes and Mid-North Atlantic Coast)

**Implementation Method:** Individual efforts are currently underway across NOAA and with our partners to identify decision-maker needs and frame science and research agendas to advance the use of natural and nature-based infrastructure for coastal resilience. Post-Sandy, many coastal decision-makers have been requesting information on the benefits that natural infrastructure options provide in place of, or integrated with, other methods of urban infrastructure and coastal defenses. NOAA has begun to focus some funding opportunities on research that advances our understanding of the benefits of natural infrastructure for coastal protection using ecosystem service valuation techniques, as well as on the application of natural infrastructure in planning for coastal resilience. NOAA is also engaged in partnership efforts, such as the SAGE (Systems

Approach to Geomorphic Engineering) community of practice, the Climate and Natural Resources Working Group, and interagency efforts focused on implementing the Hurricane Sandy Rebuilding Strategy recommendations, which are providing valuable venues for information exchange and the leveraging of resources to advance this issue.

**Key Milestones:**

- Finalize literature review on the use of ecosystem services valuation and natural infrastructure (Q3)
- Support research programs and projects that advance our understanding of the benefits provided by natural and nature-based infrastructure and that increase its application in coastal planning (all Q)
- Update the Introducing Green Infrastructure for Coastal Resilience training to include both landscape- and site-scale green infrastructure techniques; deliver 4-6 trainings on Introducing Green Infrastructure for Coastal Resilience (Q3)
- Develop a natural infrastructure online tutorial to guide users in creating a spatial analysis workplan for identifying priority natural infrastructure for resilience to coastal hazards and sea level rise. (Q3)
- Provide technical assistance to help Great Lake's coastal communities (Duluth, MN and Toledo, OH) implement the results of a recent study on the costs and benefits of green infrastructure options for flood reduction and provide these methods to be used in other areas around the U.S. (Q4)

**Metric:** Forty-three percent of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards.

**Discussion:** Natural infrastructure provides a variety of benefits including habitat for commercial and recreational fish species, opportunities for recreation and commerce, and shoreline protection. Over the past year, particularly post-Sandy, NOAA leadership has been asked to discuss and provide science and information that supports the use of natural infrastructure for coastal protection and resilience, particularly the valuation (monetary) of this particular ecosystem service. By advancing the state of knowledge around ecosystem services valuation in a changing climate, we will be able to provide coastal communities with information needed to make decisions that support both the resilience of natural resources and the communities that depend on them.

**D. Infrastructure, Facilities, and Operations Management**

**Key Vulnerability/Opportunity:** *Climate change could negatively impact the Department's infrastructure, facilities, and operations unless potential climate change impacts, such as more extreme storm events, higher average air temperatures, increased drought, and sea level rise, are proactively addressed.*

**ACTION 19: Assess the vulnerability of the Department’s leased facilities to climate change.**

**Lead Office/Bureau:** CFO/ASA

**Scale:** National

**Implementation Method:** The Department will review its direct leased portfolio and complete a Vulnerability Analysis to identify properties with the highest vulnerability to the threats of climate change.

**Key Milestones:**

- Complete a study that will identify Department- leased properties with the highest risk(s) of threat(s) caused by a changing climate. (Q3)
- Create a table that identifies the most vulnerable leased properties and defines the risk(s) associated with the geographic location of the leased asset.

**Metric:** Provide a narrative analysis addressing Climate Change vulnerabilities with the potential to threaten the Department’s direct-leased asset inventory. The analysis is supported by a summary table identifying those assets most at risk, by risk type.

**Discussion:** The Department has completed a preliminary analysis of its owned assets identifying those assets at highest risk by risk type, risk level and likelihood and severity of occurrence. This action proposes the same process for the Department’s direct leased assets. The goal is to use the analysis to support locational decisions particularly when leases approach the end of their term and the Department can relocate without penalty or when long term leases have termination rights or potentially require mitigation plans.

**ACTION 20: Continue to work with GSA to assess and analyze climate change vulnerabilities for real property assets GSA has assigned to the Department of Commerce.**

**Lead Office/Bureau:** CFO/ASA

**Scale:** National

**Implementation Method:** Continue to work with GSA as they identify GSA-owned and leased assets with vulnerabilities to climate change. As an occupant in GSA-leased and owned facilities support their efforts to adapt to incremental climate change and variability.

**Key Milestones:** TBD

**Metric:** Provide GSA with a list of GSA real property assignments with more than five (5) years remaining on the lease term and in facilities owned by GSA where Commerce occupies space. Integrate GSA’s vulnerabilities and risks analyses into the Department’s planning and mitigation strategy.

**Discussion:** The Department previously provided GSA with a listing of its mission critical GSA assignments. The methodology was to alert GSA to those assets most critical to the Department’s various missions. The Department will incorporate the criteria GSA develops for, “assessing the criticality of facilities to mission and thereby assess vulnerability to climate

changes risks over time” into its vulnerability screening analyses. The Department’s emphasis is on its GSA long term lease assignments and assignments in GSA-owned facilities.

## **VII. Interagency Coordination on Climate Change Adaptation**

Below is a description of how the Department will contribute to coordinated interagency efforts to support climate preparedness and resilience at all levels of government, including collaborative work across agencies’ regional offices and hubs, and through coordinated development of information, data, and tools.

- 1. Building climate resilient fish stocks and fisheries in US marine ecosystems - NOAA**  
Fisheries Service has collaborative efforts underway in several US marine regions to assess climate related risks to fish stocks and fisheries to help resource managers and resource-dependent communities reduce risks and increase resilience. These efforts involve collaborations with variety of partners including state agencies, industry, academia, tribes and nongovernmental organizations. The goal is to increase understanding, awareness, preparedness and response to climate-driven changes in marine ecosystems, resources and communities that depend on them. Milestones include rapid assessment of all major fish stocks in each region, delivery of regional ecosystem status reports, and production of regional climate-ocean projections for use in forecasting climate impacts on marine resources.
- 2. Building climate resilient coasts - NOAA** has extensive collaborations with state and local governments, private sector and nongovernment organizations to support climate preparedness and resilience of coastal communities facing a variety of climate-related changes including rising seas, extreme events, and increasing inundation and erosion. NOAA provides a range of products and services from technical information and tools to training, for assessing risks, adaptation planning, and implementation of actions to increase climate preparedness. NOAA also provides funding for implementation of habitat conservation and coastal zone management efforts, which are designed to increase coastal ecosystem and community resilience.
- 3. Regional Climate Services - NOAA/ National Environmental Satellite Data and Information Service (NESDIS)/National Climatic Data Center’s (NCDC’s) six Regional Climate Services Directors (RCSDs)** support the development and delivery of a wide range of place-based climate science and information products and services to help people make informed decisions. Regions include the Alaskan, Pacific, Western, Central, Southern, and Eastern U.S. regions. The RCSDs are a part of NCDC’s Regional Climate Services Program, which also includes the six Regional Climate Centers and the Association of State Climatologists. RSCDs support and coordinate with a number of other agency efforts, including Department of Interior (Climate Science Centers and Landscape Conservation Cooperatives) and recently announced US Department of Agricultural Climate Hubs. Per the table for FY13 actions, RCSDs support “Action 4: Continue coordinating climate and related ecological research and services partnerships within the Department and with Department partners to better understand climate variability and change and how climate variability and change will affect communities

and ecological processes.” The milestones and metrics listed remain the same. Regional outlooks can be found at <http://drought.gov/drought/content/resources/reports>.

4. **Coral Reef Adaptation** – The NOAA Coral Reef Conservation Program (CRCP) is involved in three interagency efforts. The audience is coral reef managers.
  - **The Climate Change Working Group of the U.S. Coral Reef Task Force** has begun a collaborative project to explore frameworks and methodologies for climate change adaptation planning for coral reef management. The project is engaging federal and regional experts to review recent advances in assessment and planning for climate change by coral reef practitioners, and use this information to tailor recent theoretical adaptation methods into a form that is more useful for coral reef management. The resulting coral adaptation planning framework will be piloted, critiqued and revised at a stakeholder meeting in the Pacific Region in 2014. This effort is co-led by NOAA and EPA and taps into the expertise of the 14 federal agency members of the US Coral Reef Task Force, The Nature Conservancy, the Australia Great Barrier Reef Marine Park Authority, academic partners and local natural resource agencies in the US States, Territories and Jurisdictions with coral reef resources. In FY 14, the existing Climate Smart Conservation framework is being tailored to coral reef adaptation planning, and will be presented, tested and critiqued at a stakeholder workshop in the Pacific. A case-study on the framework and lessons learned will be written. Based on this work, there are plans in FY 15 to repeat the process in a second region and work on guidance for the coral reef management community.
  - **Coral Reef Resilience Assessments** - The NOAA CRCP is funding and leveraging activities to advance field and desktop methodologies for assessing resilience and developing the analytical frameworks to ensure resilience to climate change is included in coral reef management and conservation decisions. The work focuses on providing data and products to inform resilience assessments, developing frameworks for assessing resilience, and employing these methods in different geographies and at different scales. The work involves many NOAA Offices and Programs, The Nature Conservancy, US Geological Survey, state and territorial governments/agencies, Australia Great Barrier Reef Marine Park Authority, academic institutions, Stockholm Resilience Center, and Oceans Tipping Point Project. The outcomes and lessons learned will be communicated to NOAA management partners and the larger global coral conservation community. The goal is to provide guidance to coral management partners on how to quantify the relative resilience of coral reefs and how to incorporate that information into management decisions to reduce the vulnerability of reefs to climate and non-climate stressors. In FY 14, resilience assessments will be completed for Rota and Tinian, Northern Mariana Islands, and additional assessments are planned for the US Virgin Islands and potentially West Maui. There is a project to build a framework for incorporating resilience information into permitting in US Virgin Islands (FY14/FY15). Data and information products to inform assessments are currently in development. A meeting of the NOAA investigators and partners will be held in FY14/FY15 to share approaches, challenges, assumptions and learn from one another and ensure that products and data are being developed in formats that maximize use.

- **US Coral Triangle Initiative (USCTI) Support Partnership Climate Change Adaptation Tools** -Through NOAA's work in the USCTI Support Program, a series of tools were developed to support coastal communities and natural resource managers understand the impacts of climate change and proactively plan for these impacts. The work was accomplished by multiple NOAA offices working with US Agency for International Development, The Nature Conservancy, World Wildlife Federation and Conservation International, the CTI Secretariat, the national and local government agencies and academic institutions of the six Coral Triangle countries. NOAA with the Department of the Interior is building on this body of work through a new USAID program in the Asia Pacific Region. The goal of the CTI work is to increase the resilience of coral reef and fisheries resources and improve the resilience of communities who are highly dependent on these resources. Based on numerous publications released in FY13, NOAA is working with partners to deliver training associated with the community-based vulnerability assessment guidance in the US Pacific Islands and investigating adapting it for the Caribbean. Communities in all six Coral Triangle countries have used the guidance and integrated the adaptation activities into natural resource and disaster risk reduction plans.

5. **Development of NOAA's National Fish Wildlife and Plant Climate Adaptation Strategy (Strategy) Implementation Plan** - NOAA is co-leading an intergovernmental effort of federal, state and tribal governments to design and implement coordinated actions that safeguard the nation's fish, wildlife and plants and the people that depend on them. The Joint Implementation Working Group was established to promote implementation of the Strategy. Additionally, NOAA is working to advance a cross-agency conversation about natural resource adaptation and to demonstrate how the Agency is implementing the Strategy. The Implementation Plan will include existing NOAA activities that address the goals of the Strategy, and identify opportunities for NOAA to implement the Strategy and advance natural resource adaptation in a changing climate. NOAA will continue to provide leadership and support for Strategy implementation by federal agencies, states, and tribes and to communicate accomplishments and lessons learned through the JIWG. The goal is to document and enhance NOAA's natural resource adaptation activities that advance the Strategy. The NOAA Implementation Plan has been completed. The JIWG will conduct a survey of current activities occurring at all governmental levels and will write a final Implementation Plan once it has been completed. NOAA leadership of and participation in the JIWG is an ongoing responsibility. The audience is internal (NOAA) initially. Once the plan is complete, summary communication products will be useful for other federal agencies and external partners. The work of the JIWG is external and fosters Strategy implementation by governmental agencies and nongovernmental partners.
6. **Presidential Policy Directive 8 on National Preparedness (PPD-8)** - NOAA is actively engaged in PPD-8, which was established to strengthen United States security and resilience through systematic preparation for the threats that pose the greatest risk, including catastrophic natural disasters. PPD-8 outlines the development of a National Preparedness Goal, National Preparedness System, and five National Planning Frameworks. NOAA has a defined role in three of these Frameworks, on Mitigation,

Response and Recovery, and participants in ongoing interagency workgroups that continue to guide mitigation, response and recovery planning, including to climate hazards, at all levels of government, and are pursuing various programs of work. For example, the Mitigation Framework Leadership Group, tasked by National Security Staff under the Climate Action Plan and Hurricane Sandy Rebuilding Strategy, is currently working on developing a revised federal flood risk reduction standard. These interagency workgroups also oversee ongoing Sandy recovery.

7. **Hurricane Sandy Rebuilding Strategy (HSRS)** - NOAA engages with a large number of agencies under the HSRS, which set forth a number of recommendations related to building infrastructure resilience to climate change in the Sandy-affected area, as well as on community planning and capacity building. NOAA also leads an interagency workgroup formed to lead on HSRS recommendations related to Green Infrastructure. Through this engagement, NOAA is helping to identify ways that agencies can encourage the integration of green infrastructure approaches in infrastructure investments and research or monitoring to inform decisions. Interagency sharing through this group will help to identify critical information and decision support tools needed and will limit duplication of effort. This activity involves several NOAA line offices, programs and cross-NOAA teams, and dovetails with other intergovernmental efforts (e.g., SAGE, USACE North Atlantic Coast Comprehensive Study, National Fish Wildlife and Plant Climate Adaptation Strategy). The goal is to identify and support ways that agencies can encourage the integration of green infrastructure approaches in infrastructure investments and projects. The audience is federal and state agencies involved in post-Sandy efforts.
8. **National Ocean Policy (NOP)** - Through the NOP, NOAA works with the 27 agencies representing the National Ocean Council (NOC), which is charged with overseeing implementation of the NOP but also includes convening authority to address a wide array of issues. One of the major areas of focus for this interagency work is on coastal and ocean resilience. Through NOP actions, Federal agencies are working together to support the various national, State, tribal, and local efforts to prepare for, respond to, and mitigate or avoid the degradation and loss of ocean and coastal habitats, water quality, and ecosystems through improved capabilities, proactive stewardship, strengthened research, and enhanced collaboration. Agencies are also enabling and supporting efforts to understand, minimize, and adapt to the impacts of climate change, ocean acidification, sea-level rise, and extreme weather events to strengthen the resilience of coastal communities. Some ongoing actions include to: strengthen and integrate observations into a coordinated network of sentinel sites to enhance the Nation's ability to provide early warnings, risk assessments, and forecasts for impacts; determine the impacts of interacting stressors on ecological systems, economies, and communities; and assess the vulnerability of coastal communities and ocean environments to climate change and ocean acidification and, in partnership with tribes, coastal communities and States, design and implement adaptation strategies to reduce vulnerabilities.

## **VIII. Modernizing Federal Programs and Policies to Support Climate Resilience Investment**

Below is a description of barriers and ways to address these barriers that discourage investments or other actions to increase the Nation's resilience to climate change while ensuring continued protection of public health and the environment.

1. **Science-based Protocols for Estimating Carbon Storage** – The lack of science and science-based protocols for estimating carbon storage services of coastal habitats is a barrier to valuing coastal carbon sequestration and investment in coastal habitat restoration. There is a need to conduct the science necessary to value the carbon services of the many relevant coastal habitats (e.g., tidal marshes, mangroves, submerged aquatic vegetation) to promote consideration and investment in these services through coastal habitat restoration and conservation.
2. **Coordinated US Ocean Observing System to Track Climate Change** - The lack of a coordinated US ocean observing system to track and provide early warning of key climate and ocean indicators for US marine ecosystems significantly affects DOC ability to prepare for and respond to climate impacts on fisheries and other trust resources. Effective fulfillment of the Department's stewardship mandates for fisheries and protected species requires up to date information on the status and trends of marine ecosystem conditions. The gap in observing system capability could be addressed with increased coordination and resources to bring together the multiple ocean observation efforts to effectively provide ocean status reports and early warnings of climate-related changes in ocean and coastal ecosystems.
3. **National Environmental Policy Act (NEPA) Guidance** – A lack of consistent guidance and approaches for incorporating climate information into federal planning and evaluation under NEPA and other cross agency planning guidance. The draft revised NEPA guidance developed through the Council on Environmental Quality may address this barrier, rather than the Department needing to address this in its own NEPA guidance.

## **IX. Opportunities to Support Climate Resilient Investments by States, Local Communities, and Tribes**

Below are opportunities to support and encourage smarter, more climate-resilient investments by States, local communities, and tribes, including by providing incentives through agency guidance, grants, technical assistance, performance measures, safety considerations, and other programs.

### **NOAA/NOS:**

1. **Coastal Zone Management Act (CZMA)** - NOAA is working through the CZMA to support and encourage smarter, more climate-resilient investments of federal, state and local resources. NOAA has been developing guidance regarding when and how to incorporate climate information into coastal planning for and implementation of CZMA activities. States are beginning to use these guidance documents and grant opportunities to address climate change and increase coastal resilience. These efforts will continue to be advanced through

NOAA's partnerships at the state and local level and under the auspices of the CZMA (and related funding). Examples include:

- **Voluntary Step-by-Step Guide for Considering Potential Climate Change Effects on Coastal and Estuarine Land Conservation (CELCP) Projects** was developed as part of NOAA's multi-phased effort to more systematically consider climate change impacts in the implementation of programmatic activities including restoration, land acquisition, and facilities development. The guide provides a clear approach for coastal management partners to consider how climate impacts might affect conservation projects and how to incorporate climate change considerations into the planning processes. Though the Guide focuses on the implementation of the CELCP, the methodology has broad application for conservation planning and land acquisition in a changing climate.
- **National Estuarine Research Reserve System (NERRS) Management Plan Guidelines** incorporate consideration of climate change impacts to help individual reserves consider climate change in strategic planning and management efforts. NOAA management planning guidance helps to reserves incorporate climate adaptation and mitigation into all aspects of planning and programming. NOAA's guidance influences future reserve-based decisions regarding infrastructure investments, land acquisition, and habitat restoration. **NERRS Procurement, Acquisition and Construction Guidance** also incorporates climate change adaptation and resilience considerations. Priority is given to support acquisition projects that enable reserves to adapt to climate and for sustainable facilities that incorporate green building principles to reduce emissions and incorporated storm resilient features. **NERRS Sustainability Plan and Carbon Footprint Assessment** aims to pilot the development of a methodology for carbon footprint assessment and a template for sustainability plans that would demonstrate proof of concept at Great Lakes reserve facilities and have potential transferability to other reserve facilities across the nation.
- **Coastal Resilience Networks (CRest) Grant Program** - NOAA held a special competition of the CRest grant program for communities impacted by Hurricane Sandy (funded by the Sandy Supplemental). Eligible organizations were encouraged to submit projects that would help their communities or region recover from the storm, as well as increase preparedness and resilience for future hazard events. Projects were submitted for one of two focus areas, Hazard Resilient Communities or Resilient Coastlines. Projects are expected to provide beneficial public outcomes for coastal communities to address existing and future risks to the natural environment, infrastructure, local economies, and vulnerable populations. The Resilient Coastlines focus area includes projects that "enhance the resilience of coastal areas by providing decision makers with baseline information and technical assistance that support the identification and implementation of natural shoreline restoration."
- **CZMA Section 309 Assessments and Strategy** is required for each state receiving funding under the CZMA. NOAA and state partners are working collaboratively to update the Section 309 Program Enhancement Guidance in advance of the next round of 309 assessments and strategy (2016-2020). The guidance is currently being reviewed at the state level, and it proposes to further focus the competitive portion of Section 309 funding on hazards/resilience related efforts for the next 5 year assessment cycle.

2. **NOAA/OAR** - Recognizing the linkage between hazard resilience and climate adaptation, Sea Grant has also been investing in a two-part Community Climate Adaptation Initiative since 2010. The first component focuses on building the adaptation capacity of each Sea Grant program and its partners through small institutional awards. The second component focuses on competitively funded demonstration projects that can highlight partnerships between Sea Grant programs and communities working on adaptation issues, and can serve as examples for other communities nationally.
3. **Development of NOAA's National Fish Wildlife and Plant Climate Adaptation Strategy (Strategy) Implementation Plan** - NOAA is working to advance a cross-agency conversation about the natural resource adaptation portfolio and demonstrate how the Agency is implementing the Strategy. The Implementation Plan will include existing NOAA activities that address the goals of the Strategy, and identify opportunities for NOAA to implement the Strategy and advance natural resource adaptation in a changing climate. In addition, NOAA participates on the intergovernmental Joint Implementation Work Group for the Strategy. NOAA will continue to provide leadership and support for Strategy implementation by federal agencies, states, and tribes and to communicate accomplishments and lessons learned through the JIWG. The goal is to document and enhance NOAA's natural resource adaptation activities that advance the Strategy. The NOAA Implementation Plan has been completed. The JIWG will conduct a survey of current activities occurring at all governmental levels and will write a final Implementation Plan once it has been completed. The current audience is internal (NOAA), but once the plan is complete, summary communication products will be useful for other federal agencies and external partners.
4. **Hurricane Sandy Rebuilding Strategy (HSRS)** - Through its engagement with the HSRS, NOAA is helping to identify ways that agencies can encourage the integration of green infrastructure approaches in infrastructure investments and projects that can support green infrastructure implementation directly and research or monitoring to inform green infrastructure decisions. For example, NOAA is working with six other agencies and CEQ on valuation and cost benefit analyses for green infrastructure in order to promote and incentivize the use of green infrastructure approaches by State and local governments and other project proponents.
5. **National Ocean Policy (NOP)** - Under the NOP, NOAA is working to assess the vulnerability of coastal communities and ocean environments to climate change and ocean acidification and, in partnership with tribes, coastal communities, and states, design and implement adaptation strategies to reduce vulnerabilities. Through this work, and with sister agencies, NOAA is working to initiate a framework for identifying, documenting, and communicating coastal and ocean adaptation strategies and related activities; develop national syntheses and assessments of coastal and ocean vulnerability to climate change, ocean acidification, and sea-level change in cooperation with relevant stakeholders (communities, ecosystem managers, etc.) and tribes; develop and disseminate methods, best practices, and standards for assessing the resiliency of natural resources, cultural resources, populations, and infrastructure in a changing climate; and foster and apply ecosystem-based approaches to adaptation, using the adaptive services of natural systems to help reduce vulnerabilities and risks to people and the built environment. NOAA is also conducting

targeted research to disseminate findings to address valuable information needs related to the direct and indirect impacts of climate change, ocean acidification, and other stressors on coastal communities, infrastructure and economies, and is developing tools (e.g., climate change models) and water quality protection measures (e.g., BMPs) aimed at assessing and mitigating the impact of future climate change and ocean acidification within existing ocean and coastal programs

6. **Promoting Climate Resilient State Marine Resources and Resource-dependent Communities** - NOAA (Fisheries Service) works with state agencies and interstate fishery management commissions to help promote sustainable marine resources, fisheries and resource-dependent communities. This partnership provides the foundation for helping state agencies better understand, prepare for and respond to the impacts of changing climate on coastal marine ecosystems. This effort would improve the production and delivery of the information they need on current and possible future conditions to design and implement management actions that promote resilient fisheries, habitats and the fishing, tourism, recreation industries and communities that depend on them. There is high and increasing need for NOAA assistance to help these key partners acquire the capacity and tools to better assess risks and take action to increase resilience of marine resources, industries and coastal communities nation-wide.
7. **Assist State, Industry and Community Efforts to Increase Resilience of Protected Species** - NOAA (Fisheries Service) has strong partnerships with state and tribal agencies, industries and communities to help protect and recover federally and state protected species. These collaborative efforts help NOAA and the state/tribal agencies fulfill their legal mandates in collaboration with affected/interested industries, communities and other organizations. There is a high and expanding need to increase the production, delivery and use of climate-related information and tools to design and implement climate-ready actions that promote the resilience and recovery of these state and federally protected species. These collaborations are the foundation for increased efforts to help states/tribes and other partners take action to increase the resilience/recovery of these protected species in a changing climate.
8. **Assist State, Industry and Community Efforts to Increase Resilience of Coastal Habitats** - NOAA has strong partnerships with state and tribal agencies, industries and communities to help protect and restore coastal habitats vital to fisheries, protected species and coastal communities. These collaborative efforts help NOAA and state/tribal agencies fulfill their legal mandates for conservation and management of fisheries, protected species, and habitats, while also promoting the near and long term economic vitality and resilience of coastal communities by providing the foundation for major economic activity (e.g., fisheries, tourism and recreation) and other important services (protection from storms/erosion, improved water quality, etc.). NOAA works closely with many organizations at local to regional and national levels to support protection and restoration of coastal habitats, rivers and watersheds. There is a high and expanding need to increase the production, delivery and use of climate-related information and tools to design and implement climate-ready habitat conservation that promotes the resilience and recovery of vital marine and coastal resources (e.g., fisheries, protected species) and the many industries, communities and economies that

depend on them nation-wide. These collaborations are the foundation for increased efforts to help government and nongovernmental entities at local and state levels increase the protection and restoration of coastal habitats that provide resilience to coastal resources and communities in a changing climate.

9. **Assess Vulnerability of Fish Stocks and Fishing Communities in a Changing Climate** - NOAA (Fisheries Service) has developed a method for rapid assessment of marine and coastal fish stocks in a changing climate to help federal, state, tribal fishery managers and partners better understand and begin preparing for possible impacts and risks to the nation's valuable marine fisheries and the industries and communities that depend on them. NMFS will work with these partners over the next two years to complete assessments of marine and coastal fish stocks in all US marine ecosystems. NOAA Fisheries has also launched a new effort to assess and track the vulnerability and resilience of US fisheries-dependent coastal communities. This effort uses a suite of key indicators to assess and track risks/vulnerability of marine resource-dependent communities over time, and can be used to help these communities assess their risks and management options under a variety of possible future climate and ocean scenarios. Additional effort is needed to fully implement the climate vulnerability aspects of this fishing community vulnerability/resilience indicator system nation-wide.
  
10. **Climate/Ocean Scenarios for Resilience for Marine Resources and Resource-dependent Communities** - State and tribal agencies, industries and nongovernmental entities involved in the use and conservation of marine resources (e.g., fisheries, protected species, habitats) need information on possible future climate and ocean conditions to evaluate risks and options for resilience and adaptation. NOAA (OAR/ESRL in partnership with NMFS) will help meet this need by providing the first web-based portal for easy access to state-of-the-art projections of future climate and ocean conditions for all U.S. marine regions. The portal will also provide a variety of tools/resources to assist using the projections in assessing risks and adaptation options. This effort is expected to significantly advance the assessment of risks and development of options for resilience action by federal, state and tribal governments, affected industries and other organizations.

## **X. Next Steps**

The 2011 *Implementing Instructions* emphasized that Federal agency adaptation plans should be “living documents,” and should be improved over time to reflect new information, ongoing agency performance against existing goals and targets, and emerging strategic priorities. Since 2012, agencies have continued to pursue a number of actions to address climate adaptation and resilience needs.

The Department will continue to update its adaptation plan to reflect lessons learned in the implementation of its adaptation plan submitted under E.O. 13514 and to incorporate new considerations and elements included in E.O. 13653.