



PROGRESS REPORT

Highlighting Federal Actions Addressing
the Recommendations of the State,
Local, and Tribal Leaders Task Force on
Climate Preparedness and Resilience

JULY 2015



Climate change is affecting every region of the United States and key sectors of our economy. Community leaders are on the front lines facing the impacts of extreme weather events, wildfires, drought, flooding, and the resulting disruptions to economies, public health, the environment, and daily life. The Obama Administration is committed to ensuring that communities are equipped to develop smart strategies and partnerships for building climate resilience. That is why, in 2013, the President established the State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience (Task Force) to provide his Administration with recommendations on how the Federal Government can respond to the needs of communities nationwide. The Task Force was co-chaired by the White House Office of Intergovernmental Affairs and Council on Environmental Quality, and its members included 26 governors, mayors, tribal leaders, and other local officials who brought their firsthand experience in recovering from natural disasters and taking action to prepare their citizens for a changing climate.

In November 2014, the Task Force delivered its [recommendations](#) to the President, focusing on opportunities to remove barriers to resilient investments, modernize Federal grant and loan programs to better support local efforts, and develop useful, actionable information and tools. They addressed a range of topics including disaster recovery, infrastructure investments, human health, community development, and natural resources.

The Task Force recommendations have served to guide and inform the climate resilience priorities of the Obama Administration. This report highlights examples of progress made to strengthen the resilience in America's communities to a changing climate, which align with the work and specific recommendations of the Task Force. In addition to this report, a summary of progress in implementing the President's Climate Action Plan to cut carbon pollution, protect American communities, and lead internationally is available [here](#).

Executive Summary

Building Resilient Communities: The Administration is focused on facilitating climate change preparedness activities in communities through incentives and place-based programs; developing policies and standards to support resilient practices, such as the Federal Flood Risk Management Standard; and leading by example in integrating climate-resilient practices throughout Federal investments, programs, and operations.

Improving Resilience in the Nation's Infrastructure: Key actions to protect critical infrastructure systems, including transportation, energy, and water systems, have focused on increasing climate considerations in infrastructure investments, promoting greater use of green and natural infrastructure through new partnerships, incentivizing climate-resilient planning and management activities, and promoting resilience practices in transportation and energy projects.

Ensuring Resilience of Natural Resources: Supporting the restoration and conservation of ecosystems in the face of climate impacts has been a key focus for the Administration through the Climate and Natural Resources Priority Agenda. Ongoing activities that address the Task Force recommendations include combating the spread of invasive species and pests, supporting resilience planning for ocean and coastal ecosystems to address ocean acidification and sea level rise, and improved management of water to withstand expected increases in drought intensity and frequency.

Preserving Human Health & Supporting Resilient Populations: The Administration has focused on addressing the needs of populations that are disproportionately impacted by climate change through targeted

technical assistance programs and resources, including building capacity to protect public health, assisting communities in building resilient food systems, and improving disaster preparedness of vulnerable communities through innovative and easy-to-use tools and apps.

Supporting Climate-Smart Hazard Mitigation and Disaster Preparedness and Recovery: Applying lessons learned from Hurricane Sandy and other extreme events, the Administration is working to build a stronger collaborative culture with communities and removing barriers to resilient rebuilding and recovery efforts. Significant progress is being made across the Administration to modernize Federal programs and data collection and mapping, and through programs like the Department of Housing and Urban Development's National Disaster Resilience Competition.

Understanding and Acting on the Economics of Resilience: The Administration has advanced efforts to promote private sector and workforce resilience to reduce economic disruptions expected from climate change including: through new public-private collaborations like the Department of Energy's Partnership for Energy Sector Climate Resilience, promoting policies that reward resilient investments, and collaboration with the insurance industry to share data and better account for climate change impacts in investments.

Building Capacity for Resilience: In order to improve the capacity of communities to recognize and address climate related risks and impacts, the Administration has been developing a comprehensive set of data and tools through the U.S. Climate Resilience Toolkit to help inform decision-making around key climate change impacts. The Administration is also facilitating cross-jurisdictional and regional collaborations to address climate challenges, launching a Resilience AmeriCorps program to increase on-the-ground community capacity, and enhancing climate literacy and public awareness.

Building Resilient Communities

Developing Models and Sharing Best Practices for Community Resilience

- ***Climate Action Champions:*** In order to identify, showcase, and support local and tribal governments with strong commitments to cutting carbon pollution and preparing for the impacts of a changing climate, the Administration launched the [Climate Action Champions](#) program. In December 2014, the U.S. Department of Energy (DOE) announced 16 champions comprised of 10 cities, 2 tribes, and 4 counties or multi-county collaborations from around the country who are defining the frontier of ambitious climate action and serving as models for other communities to follow. Champions are receiving facilitated peer-to-peer learning and mentorship, streamlined access to Federal support, and a strong Federal communications platform to help showcase their achievements in local climate action.
- ***Preparedness Pilots:*** Two ongoing “[Preparedness Pilots](#),” announced by the White House in July 2014, advance preparedness planning on the ground and help create models for other communities and agencies to follow. The pilot locations are the City of Houston, in cooperation with the National Aeronautics and Space Administration’s (NASA) Johnson Space Center, and the State of Colorado, with the DOE National Renewable Energy Laboratory. These pilots are aligning regional presences of Federal agencies with local communities to assess and plan for region-specific vulnerabilities and interdependencies associated with the impacts of climate change. In addition, the U.S. Department of Defense (DOD) is leading regional pilots to build climate preparedness in Greater Hampton Roads, Virginia, Michigan, and Mt. Home, Idaho.

Developing Resilience Standards

- ***Federal Flood Risk Management Standard:*** In January 2015, the President signed [Executive Order 13690](#), *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, which will reduce the risk and cost of future flood disasters by requiring all Federal investments in and affecting floodplains to meet higher flood risk standards. By requiring that Federally funded buildings, roads and other infrastructure are constructed to better withstand the impacts of flooding, the President’s action will support the thousands of communities that have strengthened their local floodplain management codes and standards, and will help ensure Federal projects last as long as intended. Following the release of the Executive Order, the Federal Emergency Management Agency (FEMA) solicited additional input and led eight listening sessions across the country, and issued for public comment draft Implementing Guidelines. [Review of the comments received during the public comment period is currently ongoing.]

Encouraging Climate-Smart Community Planning and Development

- ***Supporting Resilient Infrastructure Planning and Design:*** In May 2015, as part of the Build America Investment Initiative, the Administration released a [Guide to Infrastructure Planning and Design](#) to help communities expand the pipeline of infrastructure projects, while fostering economic opportunity and increasing the consideration of resilience as part of the pre-development process.
- ***Considering Resilience in Economic Development:*** In January 2015, the U.S. Economic Development Administration (EDA) published new Comprehensive Economic Development Strategy [Content Guidelines](#) that encourage communities to incorporate resilience into their long-term economic development plans by considering the impacts of climate change and other external shocks. To enhance regional resilience, EDA suggests that regions implement specific actions to bolster their long-term economic durability, share information, and convene stakeholders to collaborate on key challenges.

Leading by Example through Federal Investments, Operations, and Programs

- **Agency Adaptation Plans:** Federal Agencies have continued to make progress implementing their [Climate Adaptation Plans](#), last updated in October 2014. The Plans integrate consideration of climate change into agency operations and overall mission objectives. These plans include the identification of climate-related risks and vulnerabilities, as well as Agency actions underway or planned to mitigate those risks.
- **Executive Order on Planning for Federal Sustainability in the Next Decade:** In March, 2015 the President issued [Executive Order 13693](#) in order to maintain Federal leadership in sustainability and greenhouse gas emission reductions. The Order also directed Federal agencies to further prioritize climate preparedness by making the design and management of their facilities more resilient to climate impacts; updating agency climate resilience and adaptation actions as part of annual Agency [Strategic Sustainability Performance Plan](#) submissions; and establishing regional interagency coordination efforts with local communities regarding sustainability and resilience activities. The Order also called for educational programs and training for senior leaders in the Federal Government to better address sustainability and climate resilience in the management of land, buildings and other structures, people, and programs. The Office of Personnel Management is currently developing this training.
- **Federal Climate Training Framework:** In addition to the Federal education programs for senior Federal leaders, agencies are creating a framework for education and training to build climate literacy and capability among relevant Federal agency staff and technical service providers, such as planners, engineers, and consultants. The framework will include assessing climate literacy in Federal agencies and developing partnerships with non-government organizations to promote climate resilience outreach, education, training, certification, and engagement of academic training capability.

Improving Resilience in the Nation's Infrastructure

Supporting Climate Resilience as Part of Coastal Infrastructure Planning and Investments

- **A New Model for Climate Coastal Vulnerability Assessments:** In October 2014, the U.S. Army Corps of Engineers (USACE) released the results of its [screening-level vulnerability assessments for coastal projects](#), which found that roughly one third of USACE coastal projects are vulnerable to climate change. These assessments can be used as a model for other agencies when screening vulnerability.
- **Developing Socio-Economic Metrics to Measure Impacts:** In June 2015, the National Fish and Wildlife Foundation (NFWF) [invited proposals](#) to assess and recommend a suite of appropriate metrics by which to measure the socio-economic benefits resulting from projects funded through the U.S. Department of the Interior (DOI) Hurricane Sandy Coastal Resiliency Competitive Grant Program. This program focused on improving the health of natural systems to reduce the vulnerability of communities due to sea level rise, flooding, storms, and other related threats. The successful contractor will be selected in August through a competitive request for proposals (RFP) process.

Promoting the Use of Green and Natural Infrastructure

- **Green Infrastructure Collaborative:** Created in July and expanded in October 2014, the Environmental Protection Agency's (EPA) [Green Infrastructure Collaborative](#) brings together Federal agencies, NGOs, and private-sector entities to advance green stormwater infrastructure. Through the Collaborative, Federal agencies have provided funding assistance in at least 25 communities for green-

infrastructure projects. The EPA also released the [Enhancing Sustainable Communities with Green Infrastructure](#) report in October to help communities better manage stormwater while achieving other environmental, public health, social, and economic benefits.

- ***Green Infrastructure and the Sustainable Community Initiative:*** In 2015, the U.S. Department of Housing and Urban Development (HUD) released the [Green Infrastructure and the Sustainable Community Initiative](#) report highlighting resources, best practices, and lessons learned to help communities improve green infrastructure.
- ***Use of Natural and Nature-Based Features (NNBF) for Coastal Infrastructure:*** In January 2015, the USACE published a [report](#) as part of the North Atlantic Coast Comprehensive Study to improve coastal resilience through the greater use of natural and nature-based features such as wetlands, beaches, dunes, biogenic reefs, and other natural features.
- ***Coastal Green Infrastructure and Ecosystem Services:*** The Administration is producing a report that recommends Federal research priorities to inform the broad integration of coastal green infrastructure (CGI) and ecosystem-service considerations into planning and decision-making. The report will also serve as a useful reference for planners and decision makers by providing an introduction to major categories of CGI and associated ecosystem services as well as the factors that should be taken into account when considering if, when, and how to incorporate them into a given setting.
- ***Green Infrastructure in Hazard Mitigation:*** FEMA is currently evaluating green infrastructure approaches to activities eligible under the [Hazard Mitigation Assistance \(HMA\)](#) programs that would provide natural hazard risk reduction benefits as well as ameliorate the impacts of climate change. FEMA is determining ways to encourage communities to incorporate climate-resilient methods to achieve risk reduction in eligible HMA projects, including potential incentives for the FY16 Pre-Disaster Mitigation program

Supporting and Incentivizing Climate-Resilient Water Resource Planning and Management

- ***Federal Investment in Water and Related Land Resources:*** The updated Principles, Requirements & Guidelines (PR&G), spearheaded by the Obama Administration and completed in December 2014, modernize the handbook that guides the decision-making process for U.S. Federal agency investments in water and related land resources. For the last 30 years, these guidelines applied to a small set of agencies and applications, and were narrowly focused on a set of economic parameters that often did not allow for the consideration or valuation of the full range of costs and benefits from proposed projects. Now, the PR&G creates a common framework for a more transparent and informed decision-making process that will be used by a broader range of Federal agencies to fully consider how water and related land resource investments impact the economy, environment, and society. Under this new framework, agencies will be able to weigh monetized, quantified, and qualitative information, including impacts of climate change, equally when making investment decisions. Through this process, the modernized PR&G will help the U.S. Government account for long-term costs and benefits and create more resilient communities.
- ***Supporting Innovative Financing:*** In January 2015, as part of the Build America Investment Initiative, EPA launched the [Water Infrastructure and Resiliency Finance Center](#) to help communities across the country improve their wastewater, drinking water and stormwater systems, particularly through innovative financial tools and public-private partnership opportunities to better leverage existing Federal funding programs.

- ***Climate Resilience Evaluation and Awareness:*** In November 2014, EPA announced up to \$600,000 in training and technical assistance to help drinking water, wastewater, and stormwater utilities in more than 20 communities bolster their climate change resilience and readiness using [EPA's Climate Resilience Evaluation and Awareness Tool](#).
- ***Encouraging Resilience Considerations:*** The EPA is encouraging consideration of climate change in the management of Clean Water and Drinking Water State Revolving Loan Funds. In September 2014, the [Great Lakes Restoration Initiative](#), which accelerates efforts to protect and restore the largest system of fresh surface water in the world, released its Action Plan II that commits agencies to develop and incorporate climate resiliency criteria in project selection processes. Similarly, in June 2014, six states, the District of Columbia, Chesapeake Bay Commission, and EPA on behalf of seven Federal agencies, together constituting the Chesapeake Bay Program Partnership, signed the Chesapeake Bay Watershed Agreement which includes climate resiliency as one of its main goals. The Agreement commits this Federal, state and local partnership to efforts that increase monitoring and assessment of changing conditions to inform policies, projects and programs for the nation's largest estuary and its watershed.
- ***Water Resources Planning in the Climate Data Initiative and Climate Resilience Toolkit:*** In March 2015, the water resources theme, including a set of data and tools, was made available through the [Climate Data Initiative](#) (CDI) and the [Climate Resilience Toolkit](#) (CRT). These resources support water resources planning and management in municipal water supply, flooding, drought, and ecosystem management. (The CDI and CRT are elaborated on in the *Providing data, tools, and guidance at a scale sufficient to guide decision-making and investments* section of this document)
- ***Water Challenge Grants:*** In April 2015, U.S. Department of Agriculture (USDA) [announced](#) 21 grants totaling more than \$10 million awarded to universities to support the development of strategies for addressing critical water problems in rural and agricultural watersheds across the United States. The [grants](#) will be used to develop management practices, technologies and tools for farmers, ranchers, forest owners, and citizens to improve water resource quantity and quality.

Integrating Climate Considerations in Transportation System Planning and Management

- ***Supporting Resilient Transportation Projects:*** In September 2014, the U.S. Federal Transit Administration announced competitive awards totaling \$3.3 billion for [climate-resilient transportation infrastructure projects](#) in the states impacted by Hurricane Sandy. In April 2015, the Department of Transportation (DOT) announced \$500 million in competitive grants to fund transportation projects, including those that help communities prepare for flooding, storm damage, and disruption of the transportation network.
- ***Developing Adaptation Tools for Transportation System Planners:*** In January 2015, DOT released Phase 2 of the [Gulf Coast Study on transportation climate resilience](#). Phase 2 focused on the region of Mobile, Alabama, with the goal of enhancing regional decision-making ability to understand potential impacts on specific critical components of infrastructure and to evaluate adaptation options. DOT developed risk management tools to assist transportation stakeholders, including the [CMIP Data Processing Tool](#), which increases access to climate data; and [the Vulnerability Assessment Scoring Tool](#), which provides a framework for conducting a vulnerability assessment. In 2014, the Federal Aviation Administration (FAA) began developing guidance on airport climate adaptation and infrastructure resilience. These tools and associated data were incorporated into the CRT and CDI with the launch of the transportation theme in June 2015.

- ***Incorporating Climate Risks into Design and Asset Management:*** In February 2015, DOT proposed a new rule that would establish a process for the development of State risk-based asset management plans – providing a platform for inventorying assets, evaluating risks to those assets, prioritizing capital improvements and serving as a climate adaptation strategy. The proposed rule also calls for evaluations of reasonable, existing alternatives for roads, highways, or bridges that repeatedly require repair and reconstruction activities due to emergency events. The public comment period closed in April and DOT is currently reviewing comments.
- ***Sharing Best Practices:*** DOT is sponsoring the International Conference on Transportation System Resilience to Climate Change and Extreme Weather Events in September 2015, in Washington, D.C. The conference will provide transportation professionals with information on emerging best practices and state of the art research results on how to adapt surface transportation networks to the potential impacts of climate change and extreme weather events. The conference will examine cost-effective and resilient decision making by State DOTs, MPOs, transit and other transportation agencies in planning and programming, capital improvements, and maintenance and operations.

Supporting Property Assessed Clean Energy Programs

- ***California Multifamily PACE Pilot:*** In January 2015, Secretary Castro and California Governor Brown announced the [California Multifamily PACE Pilot](#), with \$10 million in support from the MacArthur Foundation’s Impact Investment Fund. HUD has produced guidance for how qualifying HUD-assisted and -insured housing in California can take advantage of commercial property assessed clean energy, or “PACE,” programs for renewable energy installation and energy and water retrofits. In addition, HUD will work to establish a partnership with California on its innovative on-bill-repayment pilot for multifamily buildings, through which certain multifamily properties will be able to borrow funds for energy retrofits and pay them back on their utility bill.

Support Development of a Clean and Resilient Energy Grid

- ***Modernize the Nation’s Energy Infrastructure:*** In April 2015, the Administration released the first installment of the first-ever [Quadrennial Energy Report](#) (QER), detailing an agenda to modernize the Nation’s energy infrastructure and enhance its resilience. Scoping has begun for the second installment of the QER, which will place a spotlight on other key aspects of national energy policy. In addition, USDA announced \$72 million to support new rural electric infrastructure projects that will include transmission line improvements and smart grid projects.

Finalizing Guidelines for Consideration of Climate Impacts and Greenhouse Gas Emissions in National Environmental Policy Act (NEPA) Evaluations

- ***Greenhouse Gas Emissions and Climate Change Incorporated into NEPA Reviews:*** The White House Council on Environmental Quality (CEQ) is working to complete final guidance on how Federal departments and agencies should consider the effects of greenhouse gas emissions and climate change in their NEPA reviews. In December 2014, CEQ published a revised draft of the guidance for public review and comment. The comment period on the revised draft guidance, which supersedes the 2010 CEQ draft guidance, closed in March 2015. CEQ is considering input received from Federal departments and agencies; state, local, and tribal governments; and others in order to issue final guidance that will provide a common, useful approach for considering the effects of greenhouse gas emissions and climate change in NEPA reviews to inform Federal decisions and the public.

Ensuring Resilience of Natural Resources

The [Climate and Natural Resources Priority Agenda](#), announced in October 2014, represents a first of its kind, comprehensive commitment across the Federal Government to support resilience of America's natural resources. The agenda identifies a suite of actions that the Federal Government will take to enhance the resilience of natural resources to the impacts of climate change and promote the ability of those resources to mitigate climate change through the absorption of carbon dioxide. The Agenda was developed jointly by Federal agencies and was informed by the discussions of the President's State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience and other forms of stakeholder engagement.

Restoring and Conserving Ecosystems and Lands to Build Resilience in a Changing Climate

- ***Making Key Landscapes Resilient to Climate Change:*** Announced in April 2015, [The Resilient Lands and Waters](#) Initiative is a voluntary, collaborative Federal and non-Federal effort to conserve and restore important landscapes and watersheds to increase community resilience to drought, wildfire, and other challenges that may be exacerbated by climate change. Announced by National Oceanic and Atmospheric Administration (NOAA), EPA, USDA, DOI, and the USACE in April and June 2015, the Resilient Landscape partnerships will focus on the following landscapes: southwest Florida, Hawaii, Washington (Puget Sound), the Great Lakes region, California headwaters that feed into California's San Joaquin-Sacramento Delta, the California Russian River watershed and North-Central Coast, and the Crown of the Continent in Montana and Canada. Through voluntary collaboration, partners will be able to identify shared natural resource priorities and align efforts to result in improved conservation outcomes in these geographies. Already, USDA has committed \$130 million to the California Headwaters project.
- ***Promoting Conservation through National Conservation Projects:*** In January 2015, USDA announced more than \$370 million in funding to 115 high-impact [Regional Conservation Partnership Program](#) projects across the nation that will improve soil health, water quality and water use efficiency, wildlife habitat, and other related natural resources on private lands. Roughly \$60 million was dedicated to projects that primarily target water quantity or drought-related resource concerns. In May 2015, USDA announced up to \$235 million for the next round of projects.
- ***Implementing a Wildfire Strategy:*** The [National Cohesive Wildland Fire Management Strategy](#) was launched in 2014 by the Wildland Fire Leadership Council and focuses on fire adapted communities, response to wildland fire, and restoring and maintaining landscapes. The Strategy is being implemented, in part, through large landscape restoration partnerships (i.e. USDA's \$30 million Two Chiefs Joint Landscape Restoration Partnership and DOI's recently announced \$10 million Fire Resilient Landscapes), and large landscape fire management efforts (i.e. DOI's recently released Integrated Rangeland Fire Management Strategy). The Strategy also promotes working with local communities to prepare for and adapt to wildfire. For example, USDA and DOI continue to implement the Western Watershed Enhancement Partnership by engaging with local municipalities and towns to reduce hazardous fuels in critical watersheds used for water supply. DOI is also issuing some community assistance agreements, which align with the National Cohesive Wildland Fire Management Strategy by emphasizing collaboration among state, local, and tribal leaders and communities in wildland fire management.

Combat the Spread of Invasive Species, Pests, and Diseases

- ***Invasive Species Early Detection and Rapid Response:*** DOI, working with other members of the National Invasive Species Council, including the Department of Commerce (DOC), NOAA, EPA, and USDA, is helping states and tribes develop a framework for a national Early Detection and Rapid Response (EDRR) program that will build on existing programs to assist states and tribes in forestalling the stress caused by the establishment and spread of additional invasive species populations, thereby improving the resilience of priority landscapes and aquatic areas. The framework will be complete in fall 2015.

Supporting Resilience Planning for Ocean and Coastal Ecosystems

- ***Investing in Coastal Ecosystem Resilience:*** NOAA has directed over \$35 million to help coastal communities and ecosystems become more resilient. In July 2014, NOAA announced [new program guidance](#) under Section 309 of the Coastal Zone Management Act and provided \$1.5 million in competitive funding to ensure greater consideration of how climate change may exacerbate challenges in the management of coastal areas. NOAA [Sea Grant](#), with matching contributions from its partners, provided \$24 million to support over 300 projects around the nation that will help build resilient coastal communities and economies. Finally, NOAA recently announced the availability of \$10 million in competitive grants through its [Regional Coastal Resilience Grant Program and Coastal Ecosystem Resiliency Grant Program](#).

Protecting Water Quality and Quantity

- ***Building Long Term Drought Resilience:*** Through the [National Drought Resilience Partnership](#), a cross-agency partnership launched in 2013, the Administration is continuing to leverage Federal collaborations with communities, businesses, farmers, and ranchers to build long term drought resilience and help prepare for future drought events. In June 2015, the President convened the Western Governors and senior Administration officials for an update on the Federal Government's activities in support of drought-afflicted states. In July 2015, the National Drought Resilience Partnership will host a White House Drought Symposium which will bring together a small group of high-level experts on water and drought issues across government, academia, the agricultural sector, conservation organizations, and others in the private sector to explore opportunities to improve long term sustainability of water resources – and drought resilience specifically -- through improved coordination, collaboration, and management. Additionally, EPA is developing a [Drought Response and Resilience Guide](#) for drinking water utilities to plan for and respond to drought.
- ***New Water and Drought Centers:*** In May 2015, NOAA opened a new [National Water Center](#) on the University of Alabama campus in Tuscaloosa, which will be an incubator for innovative breakthroughs in water prediction products and services, bolster the nation's ability to manage threats to its finite water resources and mitigate impacts to communities. In June 2015, NOAA awarded a grant to support drought risk management at the University of Nebraska-Lincoln. The research is intended to provide states, communities and businesses with the best available drought research, data, and information so they are better prepared to anticipate and respond to drought.

Enhancing Scientific Understanding of Climate Impacts on Natural Resources

- ***FY16 Budget:*** The President's FY16 Budget increases funding for the advancement of science and development of tools which will strengthen our natural resources. These efforts include \$108 million for research and analysis related to the role of our lands and forests as carbon sinks; \$30 million to

expand NOAA's ocean acidification research program; \$5 million for NOAA and partners to better understand, prepare for, and respond to climate impacts on marine fish stocks and fisheries; and \$415 million for the DOI's work to study climate variability and support resilience of our public lands and waters.

- ***Scientific Tracking and Predictions:*** In partnerships across California, NASA is tracking the extent of fallowed land in the Central Valley of California, via satellite imagery, as part of a California drought early warning information system that is a pilot of the interagency National Integrated Drought Information System (NIDIS). They have also developed the Airborne Snow Observatory (ASO), which will help quantify snow water equivalent and snow albedo. These data and other information are being integrated into a multivariate modeling framework for drought prediction that will be used to support the agricultural community of California and beyond.

Preserving Human Health & Supporting Resilient Populations

Addressing the Needs of Vulnerable Populations

- ***Helping Tribes Prepare for Climate Impacts:*** In July 2014, DOI Bureau of Indian Affairs launched a new \$10 million [Federal-Tribal Climate Resilience Partnership and Technical Assistance Program](#) to help tribes prepare for climate change by developing and delivering adaptation training. DOI and EPA also established an interagency group to provide tribes with data and information, improve Federal collaboration, and assist with tribal climate change adaptation and mitigation efforts.
- ***Climate Justice Initiative:*** In June 2015, the Environmental Justice Interagency Working Group [established a subcommittee](#) on climate change impacts that will focus attention on the needs of vulnerable populations, ensuring that Federal actions on climate change are being informed by and are responsive to the needs of communities with environmental justice concerns. The group will launch a Climate Justice Initiative to focus on incorporating equity into climate adaptation planning and implementation and will work to build the next generation of climate justice leaders.
- ***Environmental Justice Screening and Mapping Tool:*** In June 2015, EPA released [EJSCREEN](#), a screening and mapping tool that uses high resolution maps combined with demographic and environmental data to identify places with potentially elevated environmental burdens and vulnerable populations. EJSCREEN enables users to better understand areas in need of increased environmental protection, health care access, housing, infrastructure improvement, community revitalization, and climate resilience.
- ***Coordinating to Create Adaptation Plans for Islands:*** In May 2015, DOI's Office of Insular Affairs hired a climate change coordinator to strategically collaborate with other Federal agencies, Insular Area governments, universities, and non-governmental organizations to leverage Federal initiatives and funding sources to strengthen and implement climate change adaptation plans in insular areas.

Improving Capacity to Protect Public Health

- ***Public Health Week and Summit:*** In April 2015, the Administration celebrated National Public Health week with a series of [activities and announcements](#) focused on better understanding, communicating, and reducing the impacts of climate change on community health. In June, the White House hosted a [Climate Change and Public Health Summit](#), with participation from the Surgeon General;

Administrator of the EPA; public health, medical, and other health professionals; academics; and interested stakeholders to stimulate a national dialogue on the public health impacts of climate change and identify opportunities to minimize these impacts.

- ***Preparing the Next Generation of Medical Professionals:*** The White House announced a coalition of Deans from medical, public health, and nursing schools around the country who have committed to ensuring that the next generation of health professionals is trained to address the health impacts of climate change. In June 2015, the Deans held a workshop in Washington, DC to share practices and align common objectives to advance knowledge on the health impacts of climate change. To date, over 70 Deans have signed onto their commitment.
- ***Building on Climate-Ready States and Cities Initiative:*** In July 2014, the Centers for Disease Control and Prevention (CDC) released a [guide](#) to help public health departments assess local vulnerabilities to health hazards associated with climate change. In March 2015, CDC and American Public Health Association (APHA) released a [report](#) highlighting how cities and state grantees are successfully using the CDC's Building Resilience Against Climate Effects (BRACE) framework to identify climate-related public health threats and develop strategies to adapt.
- ***Excessive Heat Risk Characterization:*** In late 2014, NASA awarded a three-year project to utilize NASA Earth observations to characterize risk related to excessive heat in two populous Eastern U.S. states (New York and Florida). Decision makers from these states will take these new risk characterization analyses and work with their BRACE project staff, state climatologists, and the NOAA/National Weather Service to develop a plan that describes the newly developed heat indicators and how to effectively communicate them to the public.
- ***Sustainable and Climate-Resilient Healthcare Facilities Initiative:*** In December 2014, the U.S. Department of Health and Human Services (HHS) [released](#) a best practices guide for health care providers, design professionals, policymakers, and others to promote continuity of care before, during, and after extreme weather events. This is part of the HHS Sustainable and Climate-Resilient Health Care Facilities Initiative to develop tools and information to help health care facilities prepare for the impacts of climate change and increase their resilience.
- ***Community, Culture, and Mental Health Impacts:*** The White House Office of Science & Technology Policy (OSTP) hosted a workshop in April 2015 to identify research needs associated with the impacts of climate change on community, culture, and mental health. The event convened community leaders, scientists, and other stakeholders to discuss the unique characteristics and strengths of communities and cultures that make them resilient to the challenges of climate change.
- ***Climate and Health Data, and Information:*** The Administration has recently made health and climate information more usable to the public and health professionals by making data sets available and sharing toolkits and guides supporting climate-resilient health systems. Some of these initiatives include:
 - The CDI was expanded to include more than 150 [health-relevant datasets](#), challenging innovators to use this information to support communities in identifying, minimizing, and preventing the health-related impacts of climate change.
 - The National Institute of Environmental Health Sciences (NIEHS), Esri, and the HHS launched a Climate Change and Human Health Innovation Challenge Series to promote innovative

approaches and highlight technologies and health data sets available for understanding the health implications of climate change and improving resilience to adverse effects.

- The CRT was expanded to include a new [Health Care Facilities Toolkit](#), along with new case studies and Federal tools related to climate and human health, including an app that translates weather conditions into health-risk levels for outdoor workers.
- The U.S. Global Change Research Program (USGCRP) released a draft [Climate and Health Assessment report](#) that synthesized the best available scientific literature on the observed and projected impacts of climate change on human health in the United States. This draft report was made available for public comment, and is now undergoing peer review.
- In June 2015, CDC, DOD Armed Forces Health Surveillance Center and NOAA launched an effort to combat dengue fever with infectious disease forecasting. The agencies provided free access to previously unavailable historical dengue surveillance data from Puerto Rico and Peru so that scientists and modelers can help develop infectious disease forecasting models for dengue in those areas, and eventually to other areas around the world.

Assisting Communities in Building Resilient Agriculture, Forest, and Food Systems

- ***Local Foods, Local Places:*** In December 2014, the White House Rural Council and six Federal agencies selected 26 communities to participate in [Local Foods, Local Places](#), a Federal initiative providing direct technical support and expertise to community partners integrating local food systems into regional economic action plans. Under this effort, which draws on the Partnership for Sustainable Communities, a team of Federal agricultural, transportation, environmental, public health, and regional economic experts will work directly with communities to develop specific local food projects.
- ***Food Resilience Planning in the CDI and CRT:*** In November, 2014 the food resilience theme in the CDI and the CRT was published. These resources assist those interested in food security, focusing on food production, food distribution, food safety and nutrition, international food security, and improving food resilience.
- ***Building Blocks for Climate Smart Agriculture and Forestry:*** In April 2015, USDA released the [Building Blocks for Climate Smart Agriculture and Forestry](#) framework to support farmers, ranchers and forest landowners in their response to climate change. This strategy will build on the good work producers are already doing to improve conservation outcomes and reduce greenhouse gas emissions. Through this comprehensive set of voluntary programs and initiatives, USDA expects to reduce net emissions and enhance carbon sequestration. USDA expects these efforts to deliver multiple economic and environmental benefits through efficiency improvements, improved yields, and reduced risks.

Improving Disaster Preparedness for Communities Most At-Risk

- ***Developing a Heat Health Early Warning System:*** NOAA and CDC are building a new National Integrated Heat Health Information System, which will provide a suite of decision-support services that better serve public health needs to prepare and respond. This effort will identify and harmonize existing capabilities and define and deliver the research, observations, prediction, vulnerability assessments, and other information needed to support heat-health preparedness.
- ***Tools to Support Disaster Recovery:*** Informed by lessons learned from Hurricane Sandy, the Administration has developed new tools to improve disaster preparedness and recovery: DOE released

[Lantern Live](#), a mobile application that provides real-time information in the wake of severe weather events on which gas stations have fuel and which neighborhoods have electricity; and HHS launched [emPOWER Map](#), an interactive online tool, to aid community health officials and emergency managers in disaster preparedness as they plan ahead to meet the emergency needs of community residents who rely on electrically powered medical and assistive equipment to live independently at home.

- ***Local Workshops on Preparedness and Resilience:*** In the Fall of 2014, FEMA’s National Exercise Division (NED) and other Federal partners conducted a series of workshops with local leaders and planners addressing climate resilience opportunities in Houston, TX, Ft. Collins CO, Anchorage, AK, and Norfolk, VA. These workshops set the stage for continued collaboration among regionally-based Federal agencies and state, local, and tribal counterparts to enhance climate resilience specific to regional climate risks. Going forward, FEMA is now developing a Climate Adaptation, Preparedness, and Resilience Seminar series that will focus on training local authorities on the skills needed to conduct exercises focused on climate resilience requirements. Seminars will emphasize collaborative planning, regional governance, and shared resilience practices. The first pilot seminar is planned for mid-August in the Miami, FL area, in partnership with Florida International University.
- ***Studying Health System Recovery from Hurricane Sandy:*** Building on research funded by HHS grants to examine long-term recovery of health systems and communities in areas of the country hardest hit by Hurricane Sandy, HHS is planning a public meeting for later this year to share the results of the first round of studies with community based organizations, members of the impacted communities, and public health practitioners. The studies provide an evidence base from which community members and public health practitioners can make decisions about hurricane recovery and future preparedness and response efforts.

Addressing Climate Change-Related Displacement, Needs of Affected Communities, and Institutional Barriers to Community Relocation

- ***Arctic Executive Steering Committee:*** In January 2015, the President signed [Executive Order 13689](#) on *Enhancing National Efforts in the Arctic*, establishing the Arctic Executive Steering Committee (AESC) with the responsibilities of helping to shape and reconcile Federal priorities in the Arctic, promote coordinated implementation and evaluation, improve Federal engagement with the State of Alaska and Alaska Native Communities, and support U.S. Chairmanship of the 8-nation Arctic Council. The AESC formed an interagency Coastal Erosion Work Group (CEWG), co-led by DOI and HUD, which focuses on addressing the impacts of coastal erosion and other climate-related hazards on Alaska Native coastal communities. In addition, for communities considering the use of HUD funding in managed retreat from high-risk to low-risk areas, HUD is developing a set of cross-agency principles to ensure that equity and other issues are considered.

Supporting Climate-Smart Hazard Mitigation and Disaster Preparedness and Recovery

Building a Stronger Culture of Partnership to Communities Impacted by Disaster

- ***National Disaster Resilience Competition:*** The nearly \$1 billion [National Disaster Resilience Competition](#), announced by the President in June 2014, will make resources available to communities that have been struck by natural disasters in recent years. Aligned closely with a companion education and technical assistance effort by the Rockefeller Foundation, HUD's competition is designed to help states and local communities recover from past disasters while improving their ability to withstand

future extreme events through strategic community investments. In June, 2015 HUD [announced](#) the successful pool of states and communities that will compete in the second and final phase of the competition. Funding awards will be announced in early 2016.

- ***Mitigation Integration Task Force:*** In order to help communities build back stronger and safer in the face of new risks, FEMA established a Mitigation Integration Task Force to develop and implement a Mitigation Integration Pilot Program. Working with State, Tribal, local, and eligible private non-profit partners, FEMA will identify pilot projects in current and emerging disasters where there are specific opportunities to make investments that result in a more resilient outcome than would be achieved using a single funding source and program. This pilot program will work to equip communities to meet their recovery objectives and ensure that all resources are brought to bear through FEMA's Mitigation and Recovery programs to minimize the impact of future disasters. In October 2015, a core group of FEMA Hazard Mitigation and Public Assistance staff from FEMA Region VII, covering Iowa, Kansas, Missouri, and Nebraska, will receive training on Integrated Hazard Mitigation. From there, those FEMA staff will screen projects eligible for integrated mitigation in Region VII. In addition, the Emergency Management Institute is pursuing funding for State, Local, and Tribal staff to attend the new Integrated Mitigation course in FY 2016.

Removing Barriers to Rebuilding for Future Climate Resilience

- ***Integrating Climate-Related Considerations into Public Assistance Funds:*** FEMA is currently piloting Public Assistance Program Alternative Procedures, which provides increased flexibility in the use of Public Assistance funds to allow an applicant to integrate ecological or climate-related considerations into the redesign and reconstruction of disaster-damaged facilities. As communities in New York continue to rebuild from Hurricane Sandy, approximately 83% of Public Assistance dollars for permanent work are in projects that utilize the Alternative Procedures.

Modernizing Data Collection, Analysis, and Mapping

- ***3-D Elevation Program Partnership:*** In July 2014, DOI's USGS and other Federal agencies launched a \$13.1 million [3-D Elevation Program Partnership](#) (3DEP designed to bring Federal agencies, academia, corporate entities, states, tribes, and communities together to develop advanced 3-dimensional mapping data of the United States. These related data support flood risk management, water resource planning, mitigation of coastal erosion and storm surge impacts, and identification of landslide hazards as essential components of supporting action on climate resilience. To expand awareness of 3DEP status and plans, and provide an open forum for 3DEP stakeholders to communicate and coordinate, the USGS conducted [state and regional coordination workshops](#) throughout the US during May and June. Also in June, 3DEP completed production of [state-specific fact sheets for 48 states](#), featuring the applications, benefits and examples of 3DEP.
- ***Flood Mapping Tool:*** In April, 2015 NOAA announced expansion of the [Coastal Flood Exposure Mapper](#) (with data from NOAA, FEMA, USGS, and other agencies). Originally developed for a few states, it now covers coastal areas along the entire U.S. East Coast and Gulf of Mexico. This flood exposure risk mapping tool allows users to select their location and view how local populations, infrastructure and natural areas would be affected under a variety of flood scenarios, with the goal of helping communities reduce their vulnerability to current flood risks. This expanded tool is included in the CRT.
- ***Integration of Sea-Level Rise into FEMA Flood Maps:*** To better account for changing risk due to climate change, FEMA is currently conducting pilots exploring incorporation of sea level rise into

FEMA flood maps. Moreover, FEMA's Technical Mapping Advisory Council (TMAC) is tasked with developing future standards for the mapping program, including incorporating future risk into Flood Insurance Rate Maps.

Modernizing Hazard Mitigation Programs

- ***Accounting for Climate Change in Hazard Mitigation Planning:*** FEMA updated their Hazard Mitigation Assistance (HMA) Guidance to include climate resilience among the specific criteria of the three HMA programs: the [Hazard Mitigation Grant Program \(HMGP\)](#), Pre-Disaster Mitigation (PDM), and Flood Mitigation Assistance (FMA) programs. The Fiscal Year 2015 (FY15) HMA Guidance provides stakeholders with updates and refinements of program policies and practice. These enhancements will promote resilience and streamline application review, eligibility requirements, project cost estimates, and implementation.

Strengthening the National Flood Insurance Program

- ***FY16 Budget Proposal:*** The President's FY16 Budget proposal includes \$400 million for National Flood Insurance Program (NFIP) Risk Mapping efforts, an increase of \$184 million over current funding levels. This increase will further support efforts to help communities and businesses understand what areas pose flood risks and how to better prepare for those risks. The President's FY16 Budget also proposes \$175 million NFIP mitigation grants, which lower the risk of flood damage to policy holders' properties.
- ***Improving NFIP Flood Insurance Rate Maps (FIRMs):*** The Technical Mapping Advisory Council is preparing its report on ways to improve the accuracy, quality, and ease of use of the NFIP FIRMs, as well as reporting on relevant climate science and future conditions, and on the way this information may be incorporated into the mapping program to strengthen the NFIP.

Understanding and Acting on the Economics of Resilience

Promoting Private Sector and Workforce Resilience

- ***Understanding Climate Effects on Labor:*** In June, 2015 the EPA released its report, "[Climate Change in the United States: Benefits of Global Action.](#)" Impacts of climate change on outdoor labor productivity are included in the report, as well as impacts on other sectors including human health, infrastructure, water resources, and electricity. Without significant global greenhouse gas mitigation, labor hours in the U.S. are projected to decrease due to increases in extreme temperatures.
- ***Increasing Private-Sector Preparedness and Resilience:*** The President's Council of Advisors on Science & Technology (PCAST) is working to identify Federal incentives and barriers that influence private-sector climate preparedness and resilience activities. Later this month, PCAST is holding a workshop with a focus on the agriculture, water, and energy sectors, to explore mechanisms for advancing public-private partnerships on climate resilience.
- ***Public-Private Partnership on Energy Infrastructure Resilience:*** The DOE launched a "Partnership for Energy Sector Climate Resilience" with the leading providers of electricity services that will improve U.S. energy infrastructure resilience against extreme weather and climate change impacts.

Rewarding Resilient Investments and Considering the Benefits of Ecosystem Services

- ***Considering Climate Preparedness of Federal Facilities:*** In July 2015, the White House Office of Management and Budget (OMB) updated its “[Circular A-11](#)” guidance document, directing all Federal agencies to consider climate preparedness and resilience objectives as part of their Fiscal Year 2017 budget requests for construction and maintenance of Federal facilities. For the first time, all funding requests in support of Federal facilities – from office buildings and hospitals to laboratories and warehouses – must align with climate preparedness and resilience goals.
- ***Incorporating Ecosystem Services in Federal Decision-Making:*** The White House is working with an interagency task force to develop guidance directing agencies to create policies promoting consideration of the value of ecosystem services in Federal planning and decision making. The guidance will provide a methodological framework for and examples of agencies’ early successes in adopting ecosystem-services approaches for programmatic investments and analysis.

Collaborating with the Insurance Industry

- ***Collaborating with Insurance Industry for Climate Change Impacts:*** Building on a [June 2014 meeting](#) of senior government officials with CEOs of leading insurance companies to discuss the economic consequences of extreme weather events and other impacts of climate change, the Administration has been collaborating with insurance, risk modeling, and public safety experts to pursue objectives to better communicate and reduce risks to policyholders, communities, and taxpayers. For example: NOAA is leading collaborations to improve sharing of climate and weather data and information, building on the Climate Data Initiative and Climate Resilience Toolkit; the Commerce Department’s National Institute of Standards and Technology is developing a [Community Resilience Planning Guide for Buildings and Infrastructure](#); and FEMA is leading efforts to develop community-level climate and hazard resilience indicators.

Building Capacity for Resilience

Providing Data, Tools, and Guidance to Guide Decision-Making and Investments

- ***Data and Toolkits for Resilience:*** In November 2014, the Administration launched the [Climate Data Initiative](#) (CDI) in March 2014 and the [Climate Resilience Toolkit](#) (CRT) in November 2014. Recognizing that freely available, open government data can fuel entrepreneurship, innovation, and public benefits, the CDI leverages extensive Federal climate-relevant data to stimulate innovation and private-sector entrepreneurship in support of national climate-change preparedness. The CRT centralizes access to data-driven resilience tools, services, case studies, training courses, and best practices to support and inform decision making in a changing climate.
- ***Resilience Training for Local Officials:*** In May 2015, EPA launched an [Online Local Government Climate Adaptation Training Module](#) with locally tailored information that can help officials answer questions about climate impacts and resilience opportunities specific to their community. The virtual training module was developed with input from members of EPA’s Local Government Advisory Committee, and is accessible through the Climate Resilience Toolkit.

- ***Climate Resilience Indicators:*** FEMA, NOAA, and other agencies are developing national-level indicators of community and ecosystem climate and hazard resilience to improve the availability and use of Federal data for measuring progress in building resilience. The agencies will bring together disparate Federal data sources to assess trends and identify needs for future resource investments, and to provide a map-based web tool to be added to the CRT. This work will focus on economic and social components, in particular infrastructure, and will incorporate data and ecosystem information developed through DOI and NOAA efforts to measure the impacts of restoration projects on resilience. In addition, the USGCRP launched a pilot indicators effort in support of the development of the 4th National Climate Assessment.
- ***Climate Model Outputs:*** In 2015, NASA released a new Earth Exchange Global Daily Downscaled Projections (NEX-GDDP) dataset that provides downscaled climate model outputs for every country in the world. These data are critical for researchers conducting studies of climate-change impacts at sub-national scales, and the outputs support the development of information products that enhance public understanding of possible future climate patterns and impacts at local and regional scales. The NEX-GDDP dataset represents a major expansion of NASA's 2013 Earth Exchange Downscaled Climate Projections Dataset (NEX-DCP30). NEX-GDDP upgrades NEX-DCP30 by improving the temporal resolution of the data from monthly to daily averages, and broadening the geographic scope of the data from the conterminous United States to the entire globe.

Fostering and Supporting Cross-Jurisdictional and Regional Cooperation

- ***Regional Interagency Coordination:*** Building on the successes of USDA's Regional Climate Hubs and other regionally focused climate resources, through NOAA, DOI, EPA and other agencies, the Administration has taken additional steps to encourage climate preparedness coordination across jurisdictions and regions. In his March, 2015 [Executive Order 13693](#) on Planning Federal Sustainability for the Next Decade, the President directed the EPA and GSA to convene regional interagency workgroups to identify and address climate change preparedness and resilience planning in coordination with state, local, and tribal communities, as well as other sustainability measures.

Creating a Resilience AmeriCorps Program to Boost Community Capacity

- ***Resilience AmeriCorps:*** The President's [FY16 Budget proposal](#) provides \$4 million to the Corporation for National and Community Service (CNCS) and \$2 million for NOAA to support a resilience AmeriCorps program that would support roughly 200 AmeriCorps members to assist in planning for and addressing the impacts of climate change and extreme weather events in communities throughout the country. In July 2015, Corporation for National and Community Service (CNCS), EPA, DOE, and NOAA, in partnership with the Rockefeller Foundation and Cities of Service, announced Resilience AmeriCorps, a pilot program that will recruit, train, and embed VISTA members in up to 12 communities.

Increasing Climate Literacy and Public Awareness

- ***Climate Education and Literacy Initiative:*** In December 2014, the White House launched a [Climate Education and Literacy Initiative](#) to connect students and citizens with the skills they will need to succeed as tomorrow's community leaders, city planners, and entrepreneurs, in the context of a changing climate. The Initiative includes a set of commitments and announcements from Federal agencies, nongovernmental organizations, and universities to enhance climate education through K-12 and higher education, as well as informal education. In February 2015, the White House held a Champions of Change event to honor local leaders conducting outstanding climate-education work in

their communities. The event was accompanied by workshops with senior Administration officials, students, and educators to discuss challenges and opportunities associated with enhancing climate literacy. Additionally, DOE has developed the [Energy Literacy Framework](#), a tool for teaching about energy and how energy production and consumption impact climate change, with the goal of bolstering climate literacy.