U.S. Environmental Protection Agency

Climate Change Adaptation Plan

Office of Administration and Resources Management (OARM)

June 2014

Preface

The U.S. Environmental Protection Agency (EPA) is committed to identifying and responding to the challenges that a changing climate poses to human health and the environment.

Scientific evidence demonstrates that the climate is changing at an increasingly rapid rate, outside the range to which society has adapted in the past. These changes can pose significant challenges to the EPA's ability to fulfill its mission. The EPA must adapt to climate change if it is to continue fulfilling its statutory, regulatory and programmatic requirements. The Agency is therefore anticipating and planning for future changes in climate to ensure it continues to fulfill its mission of protecting human health and the environment even as the climate changes.

In February 2013, the EPA released its draft *Climate Change Adaptation Plan* to the public for review and comment. The plan relies on peer-reviewed scientific information and expert judgment to identify vulnerabilities to EPA's mission and goals from climate change. The plan also presents 10 priority actions that EPA will take to ensure that its programs, policies, rules, and operations will remain effective under future climatic conditions. The priority placed on mainstreaming climate adaptation within EPA complements efforts to encourage and mainstream adaptation planning across the entire federal government.

Following completion of the draft *Climate Change Adaptation Plan*, each EPA National Environmental Program Office, all 10 Regional Offices, and several National Support Offices developed a *Climate Adaptation Implementation Plan* to provide more detail on how it will carry out the work called for in the agency-wide plan. Each *Implementation Plan* articulates how the office will integrate climate adaptation into its planning and work in a manner consistent and compatible with its goals and objectives.

Taken together, the *Implementation Plans* demonstrate how the EPA will attain the 10 agency-wide priorities presented in the *Climate Change Adaptation Plan*. A central element of all of EPA's plans is to build and strengthen its adaptive capacity and work with its partners to build capacity in states, tribes, and local communities. EPA will empower its staff and partners by increasing their awareness of ways that climate change may affect their ability to implement effective programs, and by providing them with the necessary data, information, and tools to integrate climate adaptation into their work.

Each Program and Regional Office's *Implementation Plan* contains an initial assessment of the implications of climate change for the organization's goals and objectives. These "program vulnerability assessments" are living documents that will be updated as needed to account for new knowledge, data, and scientific evidence about the impacts of climate change on EPA's mission. The plan then identifies specific priority actions that the office will take to begin addressing its vulnerabilities and mainstreaming climate change adaptation into its activities. Criteria for the selection of priorities are discussed. An emphasis is placed on protecting the most vulnerable people and places, on supporting the development of adaptive capacity in the tribes, and on identifying clear steps for ongoing collaboration with tribal governments.

Because EPA's Programs and Regions and partners will be learning by experience as they mainstream climate adaptation planning into their activities, it will be essential to evaluate their efforts in order to understand how well different approaches work and how they can be improved. Each *Implementation Plan* therefore includes a discussion of how the organization will regularly evaluate the effectiveness of its adaptation efforts and make adjustments where necessary.

The set of *Implementation Plans* are a sign of EPA's leadership and commitment to help build the nation's adaptive capacity that is so vital to the goal of protecting human health and the environment. Working with its partners, the Agency will help promote a healthy and prosperous nation that is resilient to a changing climate.

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Introduction

The U.S. Environmental Protection Agency (EPA) is committed to the safety of its personnel, the efficient operation of its buildings, and the sustainability of the communities in which its facilities are located. One of the areas where EPA demonstrates its mission is preparing for and mitigating the potential effects of global climate change, including severe weather events, water shortages, and sea level rises. Adaptation planning to protect EPA's workforce and increase the resiliency of its facilities to ensure continued operations is a critical part of OARM's mission.

As the office within EPA responsible for facilities, transportation, security, health and safety, human resources, grants, and procurement, OARM is responsible for ensuring the safe and continued operation of the Agency's buildings, contracts, grants, and personnel. EPA's people, buildings, and operations could be impacted by any number of potential climate change effects. As required by the EPA Policy Statement on Climate Change Adaptation (June 2014), OARM has revised its Climate Change Adaptation Implementation Plan (dated June 2013).

EPA has made great strides in both preparing for and mitigating climate change effects wherever possible. The Agency's Strategic Sustainability Performance Plan (SSPP), for example, outlines numerous goals and achievements in reducing the Agency's greenhouse gas (GHG) emissions, energy dependence, water use requirements, solid waste, pollution, and other environmental impacts. EPA also has in place an extensive continuity of operations plan (COOP) designed to address natural disasters and other events that could interrupt Agency operations.

Where necessary, EPA will develop and implement new action items to protect its workforce, facilities, and operations against climate change effects and become more resilient to these effects. For example, EPA will consider enhancing the resilience of existing facilities in coastal areas to protect them from severe weather, flood damage, and sea level rise. The Agency will also work with other government agencies, particularly the U.S. General Services Administration (GSA), to account for climate change effects and resiliency in the design and construction of new facilities, or when new buildings are leased. Before undertaking any actions, EPA will assess the need and

OARM Primary Functions

Office of Human Resources (OHR): Manages traditional human resource functions and provides Agency-wide policy development, strategic planning, and direction for EPA's human resource programs.

Office of Administration (OA): Enables, manages, and maintains sustainable, safe and secure workplaces and manages facilities, safety, and security activities in support of the Agency's mission.

Office of Grants and Debarment (OGD): Provides cradle-to-grave administrative management of all Headquarters-administered grants, loans, cooperative agreements, fellowships, interagency agreements, and Suspension and Debarment program management.

Office of Acquisition Management (OAM): Manages the planning, awarding, and administering of contracts and procurement policy for the Agency.

Office of Administrative Law Judges (OALJ): Conducts hearings and renders decisions in proceedings between the EPA and persons, businesses, government entities, and other organizations that are, or are alleged to be, regulated under environmental laws.

Environmental Appeals Board (EAB): Acts as the final Agency decision maker on administrative appeals under all major environmental statutes that the Agency administers.

Office of Diversity, Advisory Committee Management and Outreach (ODACMO): provides strategic leadership in furthering the EPA's commitment to building a high performing organization that draws on the talents, experience and perspectives from all segments of society and the EPA workforce.

evaluate the potential for effectiveness of each activity, as well as estimate the resources needed to implement it.

This plan includes the following key components:

- High-level vulnerability assessment
- Current efforts to address climate change
- Possible new action items
- Measurement and performance evaluation
- Additional analysis tools and criteria for prioritizing action items

High-Level Vulnerability Assessment

In 2011, OARM developed a high-level assessment of the Agency's vulnerabilities to climate change specific to its functional areas. Based on the potential effects of climate change, OARM has identified the following vulnerabilities as medium to high priority. *Note: This assessment does not address EPA research capabilities that might be affected, only its ability to maintain the facilities, operations, procurement, security, and personnel in support of those needs.*

Water Quality and Supply: Changes to water ecosystems—including increasing water temperatures, decreasing precipitation days, and increasing drought intensity—could mean a change in the disposition of water supplies and potentially compromise the quality and quantity of water available for use. EPA laboratories require water to conduct experiments and meet building cooling requirements. Water shortages and quality issues will require better water conservation planning, especially in drought-prone regions.

Severe Weather or Flooding Damage: Facilities in coastal or flood-prone areas could face the effects of increasing floods, intense hurricanes, and extreme temperature shifts. In addition to planning and preparing for such severe weather events before they occur, EPA may have to shift its real estate priorities and resources to respond to damage incurred by facilities in coastal regions and other affected locations.

Field Worker Safety: Because a portion of EPA employees and contractors are engaged in field work, they may be vulnerable to extreme temperatures or other weather events. Emergency management mission support must include procuring the proper personal protective equipment to be prepared for such types of working conditions while conducting sampling, remediation, and other outdoor/field activities.

Physical Security: In many EPA locations, closed-circuit television (CCTV) security cameras, intrusion detection systems, outdoor lighting, and access control devices must run continuously. EPA should ensure that these devices are secure in severe weather conditions and continue to be powered by an uninterruptible power supply (UPS) or have access to a backup generator as needed if climate-related conditions cause interruptions in the power supply.

Security Operations and Emergency Communications: Severe weather events and other climate-related conditions causing interruptions in power could limit electronic communications, cell phone services (including radio communication "walkie-talkie" service), and analog phones in EPA locations where public address systems are not connected to backup power. EPA's COOP should address emergency communications in such instances.

Current Efforts to Address Climate Change

Even before such measures were required under Executive Order (EO) 13514, EPA undertook a variety of climate change mitigation strategies, setting aggressive goals to quantify and reduce the carbon footprint associated with its facilities, employees, and operations. Following are just a few of OARM's efforts and recent results in this area.

GHG Emissions Inventory and Reductions

In fiscal year (FY) 2013, EPA's Scope 1 and 2 GHG emissions were 57.4 percent lower than its FY 2008 emissions baseline (far exceeding the Agency's goal to reduce Scope 1 and 2 emissions 25 percent by FY 2020), thanks in large part to energy efficiency projects at its facilities, improved fleet management practices, and extensive green power purchases. EPA's Scope 3 GHG emissions decreased 40.4 percent compared to its FY 2008 baseline, due to reductions in business air travel, increased use of telework, and cuts in travel budgets.

Energy Efficiency

EPA's FY 2013 energy intensity was 25.6 percent below the FY 2003 baseline, exceeding the EO 13514 requirements. EPA closely tracks and manages its energy use and plans to continue making significant progress in reducing its energy intensity by focusing on implementing key projects identified during facility energy assessments. The Agency also exceeded the EO 13514 petroleum use reduction requirement by using 38.9 percent less fuel in fleet vehicles compared to the FY 2005 baseline.

High Performance Sustainable Buildings

Approximately 11.5 percent of EPA's Federal Real Property Profile buildings met the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* in FY 2013.

To make the Agency's facilities more climate-resilient, EPA has reviewed resiliency-related municipal regulations, zoning ordinances, building codes, subdivision specifications, and other literature from federal, state, and local entities and from academia. As part of this effort, EPA has also discussed climate resiliency planning with GSA's Office of Mission Assurance and is examining proposed and existing green building rating systems for relevant climate resiliency considerations. EPA has developed an initial list of climate resiliency planning considerations, which it will use to update the Agency's space planning and leasing guidelines in FY 2015 and 2016.

Water Conservation

In FY 2013, EPA's water intensity reduction of 38.8 percent far exceeded the EO 13514 requirement of 10 percent. EPA also far exceeded requirements for reducing landscaping water use, achieving a 95.3 percent reduction compared to FY 2010.

Pollution Prevention and Waste Reduction

EPA adopted a more aggressive waste reduction goal of 55 percent compared to the 50 percent goal required by EO 13514. The Agency already exceeded that goal with an FY 2013 waste diversion rate of 64.7 percent.

Electronic Stewardship and Data Centers

EPA's purchasing and IT policies require: energy-efficient and environmentally preferable features on electronic products; achieving a 100 percent power management enabling rate on computers and monitors; and reusing, donating, recycling, or disposing of electronic equipment in an environmentally sound manner. EPA plans to reduce its number of data centers as well.

Possible New Action Items

In addition to addressing its high-level vulnerabilities described previously, OARM will consider possible new action items to pursue as part of its climate adaptation plans, depending on funding and available resources (including personnel and other Agency resources).

Lead Office	Action Item	Priority & Timeframe
OA	**Make Adaptation Part of High Performance Sustainable Buildings** • *Consider Adaptation and Resiliency as Part of Building Management Plan Guidelines (BMPG):* As part of its efforts to meet the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles)*, EPA developed and is working to implement the BMPG in its owned facilities. OARM will review the BMPG for existing mitigation strategies and identify opportunities to address climate change adaptation and resiliency when assisting existing facilities in meeting the *Guiding Principles*. • *Work With GSA:* For facilities that EPA does not own, OARM will work with its counterparts at GSA to ensure climate change adaptation and resiliency are taken into account in procuring, renewing leases, and maintaining existing facilities, especially in communities where severe weather and other climate-related events could have the most impact. • *Update Best Practices (Environmental) Lease Provisions (BPLP):* EPA includes the BPLP with GSA's standard Solicitation for Offer template to facilitate inclusion of environmental provisions in new lease actions. EPA will identify potential impacts of several key climate stressors on leased facilities and will review the BPLP to determine if climate change resiliency requirements should be added in the future. • *Update Architecture and Engineering Guidelines (A&E Guidelines):* EPA's *A&E Guidelines* provide guidance for facilities management, engineering, planning, and architecture professionals in the design and construction of new EPA facilities and the evaluation of existing facilities. EPA will identify potential impacts of several key climate stressors and will review its *A&E Guidelines* to determine if climate change resiliency requirements should be added in the future. • *Incorporate Adaptation and Resiliency Into GreenCheck:* GreenCheck, OARM's process for evaluating new construction and renovation projects for various environmental initiatives and high performance sustainable building characteristics, will consider measures to ensure	**Medium/ Ongoing** 

	building additions, construction, and other efforts take adaptation and resiliency to severe weather and other climate change-related effects into account when projects are undertaken.	
OA	**Conduct Pilot Facility Climate Resiliency Assessment** EPA will select a representative, mission-critical facility that is currently experiencing impacts from climate change and conduct a pilot assessment analyzing the climate stressors, vulnerabilities, adaptive responses, and lessons learned for that facility. Through the pilot study, EPA will "beta test" the proposed updates to its facility planning documents to improve resiliency for EPA facilities and contribute to the climate adaptation knowledge base for the federal community.	**Medium/ 2015** 
OA	**Incorporate Adaptation Into Water Conservation Planning** As part of its ongoing work to reduce water intensity across all of its reporting facilities, EPA will revisit its existing Water Conservation Strategy to ensure that water is being used as efficiently as possible in its facilities, and that laboratories are prepared to respond in the event of a drought or other water shortage or quality event.	**Medium/ 2015** 
OA	**Reduce Energy Reliance** EPA laboratories demand higher-than-average energy use to meet the Agency's research requirements. Because severe weather events and rising temperatures can impact the consistent delivery of power from the nation's electrical grid, EPA will continue to reduce its reliance on traditional energy sources through energy conservation measures, fleet efficiency, and onsite renewable energy generation.	**Medium/ Ongoing** 
OAM	**Prepare for Contract Continuity** Federal Acquisition Regulation (FAR) Part 18 addresses emergency contracting policies at the federal regulatory level, and the Office of Federal Procurement Policy (OFPP) Emergency Acquisitions Guide provides supplemental guidelines, as does OARM's COOP.	**Low/2015**
OHR	**Educate Employees on the Impacts of Climate Change** Once the final Climate Adaptation Plan is published, OARM will integrate with other Agency-wide adaptation efforts to increase employee awareness of climate change effects that may affect their ability to implement effective programs. OARM will work with the EPA Office of Policy to provide the necessary data, information, training, and tools to employees to ensure continuity of operations.	**Low/2015**
OHR	**Redirect Personnel as Needed** Following severe weather and other events, EPA response personnel may need to be redirected to assist emergency management personnel, assess environmental damage, and test sites for air quality, water quality, and other environmental health concerns.	**As needed**

Monitoring and Evaluation

OARM recognizes that evaluating progress on climate change adaptation and resiliency is important. Much of the work described in this plan is evaluated annually as part of the SSPP, OMB Scorecard, and federal agency environmental compliance process. In addition, EPA will gather and review lessons learned over time as the Agency responds to severe weather events, addresses changing priorities, and mainstreams climate adaptation planning into personnel, facilities, and operations processes. We will use this information to continually improve our climate change adaptation and resiliency planning and response actions.

Looking ahead, OARM could track progress on climate change adaptation by incorporating new action items into future SSPP updates. As an existing, annually updated strategy that encompasses both climate change mitigation activities and EPA's progress on specific Agency-wide goals regarding facilities, personnel, and operations, the SSPP is the most appropriate way to track actions taken to adapt to climate change effects such as severe weather events that impact its facilities and operations and document EPA's efforts to build resiliency to such impacts.

Appendix: Potential Analysis Tools

Regional Climate Scenarios

In January 2013, the U.S. Global Change Research Program (USGRP) made available the first standardized set of regional climate scenarios and global sea level rise scenarios that all federal agencies can use in their adaptation planning efforts. The scenarios provide pictures of future climate and sea level rise that EPA can use as it anticipates and prepares for climate change.

OARM and each Region could, depending on funding availability, evaluate the potential impacts of climate change on their facilities, personnel, and operations using the Integrated Climate and Land Use Scenarios (ICLUS) (http://www.epa.gov/ncea/global/iclus/) developed by EPA's Office of Research and Development. These are nationwide housing-density scenarios consistent with climate change storylines. Combined with the USGCRP's regional climate scenarios, ICLUS can help answer the question, "What should we plan for?" They can help evaluate how interactions between climate and land-use changes may affect air and water quality, human health, and ecosystems.

EPA's Climate Resilience Evaluation and Awareness Tool

Version 2.0 of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) is now available for download at www.epa.gov/climatereadyutilities. The tool assists drinking water, wastewater, and stormwater utilities in identifying climate change threats, assessing potential consequences, and evaluating adaptation options.

Eight Regions Defined by the National Climate Assessment