U.S. Environmental Protection Agency
Office of Research and Development

Climate Adaptation Implementation Plan

Prepared by the ORD Climate Adaptation Implementation Plan Team

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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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Chapter 1. Introduction

As the climate changes, it affects the ability of EPA to achieve its basic mission to protect human health and the environment. Many of the outcomes EPA is working to attain (e.g., clean air, safe drinking water) are sensitive to changes in weather and climate. Until recently, EPA has been able to assume that climate is relatively stable and future climate will mirror past climate. However, with climate changing more rapidly than society has experienced in the past, the past is no longer a good predictor of the future. Climate change is posing new challenges to EPA's ability to fulfill its mission.

To address these challenges, EPA developed its first Agency-wide plan for adapting to the changing climate in 2012. EPA was one of over 60 federal agencies that were required to develop climate adaptation plans under Executive Order 13514, signed by President Barack Obama in 2009.That order required each federal agency to "evaluate agency climate-change risks and vulnerabilities to manage the effects of climate change on the agency's operations and mission in both the short and long term…."[1]

On June 2, 2011, Administrator Lisa Jackson issued the "EPA Policy Statement on Climate-Change Adaptation." The Policy Statement recognizes that climate change can pose significant challenges to EPA's ability to fulfill its mission and calls for the Agency to anticipate and plan for future changes in climate and incorporate considerations of climate change into its activities. The first action called out in the Policy Statement is to "Develop and publish the EPA Climate-Change Adaptation Plan," which was completed and submitted to the Council on Environmental Quality (CEQ) in late June 2012.

The EPA Climate Change Adaptation Plan

The EPA Climate Change Adaptation Plan is the first step in meeting the requirements of Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance) to implement climate change adaptation planning across the Agency. The Plan was developed by a cross-Agency working group led by the Office of Policy and including each national program and regional office, and it represents a true EPA-wide perspective on climate change adaptation, Agency vulnerabilities to climate change, and priority actions needed to ensure that EPA and its partners at the tribal, state, and local levels are able to fulfill EPA's mission to protect human health and the environment even as we face the impacts of a changing climate.

The EPA Climate Change Adaptation Plan calls for each office to develop an office-specific plan for implementing the priority actions as appropriate for that office. These implementation plans have been developed in coordination across EPA to enable adequate flexibility to address the challenges and situations faced by each office without losing the strength of collaboration to address common vulnerabilities.

The Adaptation Plan outlines the known vulnerabilities of EPA carrying out its mission due to climate change, identifies approaches to "mainstreaming" climate change adaptation in EPA through a series of ten priority actions (see text box), and describes measures to evaluate performance.

[1] Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," October 5, 2009.

Among the Agency priorities for implementing measures to adapt to climate change is partnering with tribes. EPA works with federally recognized tribes on a government-to-government basis to protect the land, air, and water in Indian country.

Supporting the development of adaptive capacity among tribes is a priority for the EPA. Tribes are particularly vulnerable to the impacts of climate change due to the integral nature of the environment within their traditional life ways and culture. There is a strong need to develop adaptation strategies that promote sustainability and reduce the impact of climate change on tribes and tribal lands.

Agency-wide Climate Change Adaptation Priorities

1. Fulfill Strategic Measures in FY 2011-2015 EPA Strategic Plan
2. Protect Agency facilities and operations
3. Factor legal considerations into adaptation efforts
4. Strengthen adaptive capacity of EPA staff and partners through training
5. Develop decision-support tools that enable EPA staff and partners to integrate climate adaptation planning into their work
6. Identify cross-EPA science needs related to climate adaptation
7. Partner with tribes to increase adaptive capacity
8. Focus on most vulnerable people and places
9. Measure and evaluate performance
10. Develop program and regional office Implementation Plans

EPA engaged tribes through a formal consultation process in the development of the Agency's Climate Change Adaptation Plan. Tribes identified some of the most pressing issues as erosion, temperature change, drought and various changes in access to and quality of water. Tribes recommended a number of tools and strategies to address these issues, including improving access to data and information; supporting baseline research to better track the effects of climate change; developing community-level education and awareness materials; and providing financial and technical support. At the same time, tribes challenged EPA to coordinate climate change activities among federal agencies so that resources are better leveraged and administrative burdens are reduced.

This Implementation Plan identifies specific steps that will be taken to partner with tribes on an ongoing basis to understand, increase, and address their adaptive capacity and adaptation-related priorities. These collaborative efforts will benefit from the expertise provided by our tribal partners and Traditional Ecological Knowledge (TEK). TEK can be a valuable body of knowledge in assessing the current and future impacts of climate change and has been used by tribes to adapt to changing surroundings. Consistent with the principles in the 1984 Indian Policy, TEK is viewed as a complementary resource that can inform planning and decision-making.

Networks and partnerships already in place will be used to assist tribes with climate change issues, including the National Tribal Caucus of EPA's National Tribal Operations Committee, Regional Tribal Operations Committees, and EPA-tribal partnership groups. EPA can also use funding through the Indian General Assistance Program (IGAP) to support climate change capacity-building efforts. Additionally,

efforts will be made to coordinate with other regional and program offices in EPA, since climate change has many impacts that transcend media and regional boundaries. Transparency and information sharing will be a focus, in order to leverage activities already taking place within EPA offices and tribal governments.

An additional priority for all regional and program offices is the need to focus on vulnerable populations and locations. Certain parts of the population, such as children, the elderly, minorities, the poor, persons with underlying medical conditions and disabilities, those with limited access to information, and tribal and indigenous populations, can be especially vulnerable to the impacts of climate change. Also, certain geographic locations and communities are particularly vulnerable, such as those located in low-lying coastal areas. One of the principles guiding EPA's efforts to integrate climate adaptation into its programs, policies and rules calls for its adaptation plans to prioritize helping people, places and infrastructure that are most vulnerable to climate impacts and to be designed and implemented with meaningful involvement from all parts of society.

This Implementation Plan identifies key programmatic vulnerabilities and the priority actions that will be taken to address those vulnerabilities over time. As the work called for in this Plan is conducted, the communities and demographic groups most vulnerable to the impacts of climate change will be identified. The Agency will then work in partnership with these communities to increase their adaptive capacity and resilience to climate change impacts. These efforts will be informed by experiences with previous extreme weather events (e.g., Hurricane Katrina and Superstore Sandy) and the subsequent recovery efforts.

The Adaptation Plan also includes a list of comment areas of focus for the office-specific implementation plans, which will be addressed in the text below. The EPA Adaptation Plan sets the stage for the implementation plans for each office, including ORD.

ORD's Mission and Adapting to Climate Change

ORD's mission is to provide the solid underpinning of science and technology for the Agency. ORD has been involved in climate change research for over 20 years, with a strong focus on conducting research to inform the Agency regarding the impacts of climate change on air quality, water quality, and human and ecosystem health. These efforts, at their core, have been designed to inform EPA's program and regional offices as they set and implement policies that will remain effective in a changing climate.

The pace and scale at which climate impacts are occurring create a challenge for ORD by increasing the rate at which new issues arise and new scientific and technical information is needed by the Agency. The impacts of climate change are now illustrating the need to address impacts that the Agency is likely to face in the future, while maintaining flexibility to respond to issues that may arise as climate change impacts occur in unexpected ways.

Relationship of climate adaptation to ORD's Research Programs

ORD's research must be conducted in the context of a changing climate. Such changes will occur across all of ORD's research programs as we learn more about environmental conditions and as we respond to EPA programs and regions and their needs to address those changing conditions.

The recent restructuring of ORD's research programs places ORD in a good position to effectively adapt to climate change and maintain our ability to provide the scientific and technical information needed by our program and regional office partners. The expanded and on-going interactions with our EPA partners form a good foundation for understanding their concerns regarding climate adaptation and enable us to communicate new research needs as they develop. The current program structure also provides a strong means for developing research that cuts across the ORD research programs to bring to bear the right mix of expertise needed to address issues identified by our partners.

Components of the Implementation Plan

This implementation plan has three main components: (1) an assessment of ORD's vulnerabilities to climate change impacts; (2) priority actions for ORD to take to adapt to climate change and reduce its vulnerabilities; and (3) a discussion of performance measures to be developed to evaluate progress toward meeting key goals.

Chapter 2. Assessment of ORD Vulnerabilities and Challenges to Climate Change

In the context of the EPA Climate Change Adaptation Plan, ORD seeks to understand the climate-related vulnerabilities and challenges to providing needed scientific and technical support to EPA's program and regional offices, and how to adapt to those vulnerabilities and challenges. EPA's program and regional offices have developed initial vulnerability assessments of their programs to climate change, which will inform ORD's vulnerabilities. ORD's vulnerabilities refer to the degree to which ORD's capacity to carry out its mission is susceptible to the impacts of climate change, including climate variability and extremes. These could include damage or limited access to facilities, worker safety or security, or lack of fundamental resources such as water or energy. To effectively support the EPA programs and regions, climate change presents ORD with numerous challenges that do not pose physical, climate-related constraints on our ability to conduct and deliver research, but could require changes in our research portfolio to address climate change impacts, compared to what we would have done in the absence of those impacts. ORD's challenge is to be flexible and responsive to the changing science needs of our EPA partners as they work to maintain and improve environmental protection in the face of a changing climate.

> Vulnerabilities refer to the degree to which ORD's capacity to carry out its mission is susceptible to the impacts of climate change, including climate variability and extremes.
>
> Challenges do not pose physical, climate-related constraints on our ability to conduct and deliver research, but could require changes in our research portfolio to address climate change impacts.

Operational Vulnerabilities

OARM has primary responsibility for operation and maintenance of the research facilities used by ORD, including addressing the vulnerability of these facilities to the impacts of climate change. The key operational vulnerabilities are listed in Table 1 below (with OARM's assessment of the level of vulnerability). Given ORD's knowledge of these facilities, ORD staff will work collaboratively with OARM to identify potential problems and develop proactive adaptation measures for facilities and those who use them. Even though OARM has primary responsibility for facility protection and response, ORD will carry significant responsibility for unique research equipment, continuity of experiments, archived samples, and historical data within those facilities which may be vulnerable to climate change impacts. Coordination between on-site ORD staff and OARM will substantially improve the evaluation of vulnerabilities, particularly climate-related environmental changes such as temperature and extreme precipitation events, and the possible approaches to mitigate them.

ORD will also have responsibility for those systems that may be vulnerable to the impacts of climate change, such as field sampling systems, that do not fall under the heading of "facility." Such systems may be vulnerable to temperature or precipitation extremes or other climate-associated impacts.

Table 1. Key operational vulnerabilities posed by climate change

Area of Vulnerability	OARM Estimated Level of Vulnerability
Energy Security	High
Water Quality and Supply	High
Severe Weather or Flooding Damage	Medium (Will vary with location. Gulf Breeze, Edison, and Narragansett are likely to face higher levels of vulnerability to severe weather and flooding than other ORD locations.)
Safety of Field Workers	Medium
Security Operations, Emergency Communications	Medium
Personal Property	Low
Real Property	Low
Shift in Emergency Response Personnel	Low
Continuity of Operations Plan (includes training of essential personnel)	Low

Scientific Challenges

Understand partner needs and regional differences

The scientific challenges, to a large degree, have been well communicated to ORD, partly as a consequence of the increasing interactions with EPA program and regional offices during the development of ORD's program-focused research portfolios. A primary focus of the consolidation of ORD's research into six national research programs has been to expand the opportunities for program and regional offices to identify their needs for scientific and technical information and support, which is then incorporated into the development of ORD's research agenda. Such interactions are not new in the area of climate change and adaptation – discussions to identify partner office needs related to climate adaptation have long been a core component of ORD's Global Change Research Program (now part of the Air, Climate, and Energy Research Program) and the Water Quality and Drinking Water research programs (now incorporated into the Safe and Sustainable Water Research Program).

The climate adaptation research needs identified in past and current discussions are consistent with the vulnerabilities to EPA's mission identified by EPA's program and regional offices in the development of their Adaptation Implementation Plans. The on-going interactions between ORD and the program and regional offices have provided ORD with a head start toward meeting the scientific challenges posed by our partners' programmatic vulnerabilities. Examples of research results that address vulnerabilities to climate change include the assessment of air quality impacts associated with climate change[2] and development and release of scenarios for land use change under different possible future conditions, including climate change.[3]

[2]Assessment of the Impacts of Global Change on Regional U.S. Air Quality: A Synthesis of Climate Change Impacts on Ground-Level Ozone, U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-07/094F, 2009.
[3]ICLUS Tools and Datasets. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/143F, 2010.

The key programmatic vulnerabilities identified by the program and regional offices are listed below in Table 2, with the understanding that this list will very likely change as EPA's adaptation planning efforts progress and our understanding of the science of climate change and its impacts expands.

Given the dynamic nature of the scientific needs across the Agency, one of ORD's challenges will be to develop the flexibility to respond quickly to emerging adaptation issues that may not now be seen as priorities.

Table 2. Key programmatic vulnerabilities identified by program and regional offices, with ORD capacity to provide relevant information related to those vulnerabilities. The order of the list does not necessarily reflect the program or regional office priority.

Programmatic adaptation vulnerabilities that may pose scientific challenges	Primary Office[a]	Current ORD capacity[b]
Tropospheric ozone (OAR Tier I[c])	OAR	High
Particulate matter (OAR Tier II)		High
Indoor air quality (OAR Tier I)		Medium
Biogeochemical Cycling (Tier III)		Medium (nutrients), Low (carbon and water)
Impact of more intense extreme weather events on OAR disaster response planning (potential)		Medium
Environmental justice implications (potential)		Medium
Stratospheric Ozone (Tier II)		Low
Effect on energy efficiency programs of climate-driven changes in energy demand and supply (potential)		Low
Changes in chemical use patterns (fracking, oil spill dispersants, water purification and desalinization, wastewater treatment or antimicrobial and disease prevention)	OCSPP	High
Changing weather trends (including weather extremes) in pesticide exposure models and tools		Low
Increased demand for climate adaptation information applicable to developing countries that are at greatest risk for climate-related disasters; technical support is likely to be needed for both rural areas and urban centers	OITA	High
Programmatic adaptation vulnerabilities that may pose scientific challenges	Primary Office[a]	Current ORD capacity[b]
Increased vulnerability to diseases (waste disposal, clean water, changing disease geographies)	OITA	High
Invasive species and ocean acidification		Medium
International risk assessment, including SLR, weather extremes, cookstoves, glaciers and snow cover, clean water supply		Medium
Arctic Council participation		Medium
Traditional ecological knowledge (TEK)		Low

Impacts to cultural resources, including traditional food resources (fishing, hunting)		Low
Arctic impacts (loss of sea ice and potential village abandonment, mobilization of POPs)		Low
Transport of hazardous substances due to flooding from more intense and frequent storm events	OSWER	High
Changes in groundwater processes and impact to hydrogeological remediation		High
Change in liner permeability due to saltwater intrusion and increased groundwater salinity in coastal aquifers		High
Temperature-driven changes in contaminant volatility		High
Impacts to phytoremediation and ecological revitalization due to changes in plant growth		Medium
Inundation and vulnerability to storm surge		Medium
Potential need for increased emergency preparedness due to impacts from severe weather events		Medium
Drying of the landscape		Low
Contamination risk due to melting of permafrost		Low
Air and water temperature increases	OW	High
Storm intensity (impacts to stormwater infrastructure)		High
Rainfall/snowfall levels and distribution		Medium
Sea level rise		Medium
Changes in energy generation		Medium
Coastal/ocean characteristics		Low

a. Regional offices are not listed separately. The issues identified by the program offices are repeated in regional office vulnerability assessments as appropriate to regional needs.
b. ORD Capacity refers to the internal expertise and facilities available to ORD to conduct research in the specific area.
c. OAR described vulnerabilities in terms of tiers according to their estimate of scientific understanding. Tier I: impact is well established in the literature and has clear implications for the Program's success; Tier II: impacts are being or have been explored by the research community, but significant uncertainties remain; Tier III: the literature is evolving and program implications are uncertain

Although the purpose of this plan is to ensure that EPA is able to carry out its mission as the climate changes, the broader and longer-term need is to ensure that the nation is able to adapt to the impacts of climate change. While this broader scope is closely related to the vulnerabilities identified by EPA's program and regional offices, ORD must also remain cognizant of the adaptation needs of various external partners in local, state, and tribal governments; other federal agencies; international institutions; industries; the research community; and, the public at large. Many of the issues identified in this section are applicable to this broader set of partners and will require their active participation. This broader scope will also require incorporation of research results developed by other science partners in the US Global Change Research Program, the academic community, industry, and research carried out at the tribal, state, and local levels.

Incorporate climate science, strengthen climate adaptation science, and develop cross-Agency research priorities

The issues listed above highlight the need to continue to develop the scientific and technical information to support adaptation. This will require an on-going effort to incorporate the latest understanding of climate science into the development of ORD's research planning to ensure that the adaptation research efforts are focused on understanding how to adapt to conditions that are likely to be experienced in the future. It will also require that ORD conduct research, incorporate the results of others, and work with others to identify the issues that are likely to pose the most serious threats to human health and the environment and to the Agency's ability to continue to protect them. This will require that ORD work with EPA program and regional offices to identify Agency-wide research priorities, as opposed to a set of office-specific priorities. The existing ORD programmatic structure and the EPA Adaptation Working Group provide the means through which such priorities can be developed. Even so, further discussions will be needed to clearly define the approach needed to identify priorities that cut across partner and ORD program boundaries.

Improve flexibility to address emerging and unexpected problems

There are likely to be issues related to climate impacts and adaptation that arise more rapidly than the normal planning cycle, and which may require relatively rapid response from ORD. Where the magnitude of such issues is significant enough, it may be necessary to divert resources (whether staff or funds) to address the emerging or unexpected problem. More generally, however, ORD will need to continue its close interactions with program and regional partners to ensure close communication is maintained so that such issues are quickly identified in the context of the Agency's needs. In addition, ORD will need to continue to provide expert perspectives on emerging issues. This requires that ORD continue development of the staff's scientific and technical capabilities across a broad spectrum of climate-related topics.

Communicate climate, adaptation, and mitigation science

One need that has been identified by program and regional office partners is to develop the ability to communicate current, relevant scientific information about climate change across EPA. For example, given the rapidly growing volume of research on climate change, its impacts, and responses, one of ORD's challenges related to climate adaptation will be to effectively identify and communicate key scientific results that impact EPA's ability to effectively adapt to climate change and support climate change adaptation across the country. The critical need for such information has been identified as a priority by the U.S. Global Change Research Program. This interagency group is in the process of developing a Global Change Information System (GCIS), which is intended to provide a single source of up-to-date information on science and technology related to climate change, climate impacts and adaptation, and mitigation.

Even with the development and deployment of the GCIS, communications across all EPA offices on climate science issues needs to be enhanced to ensure quick and effective sharing of key information, identification of science needs, and understanding of stakeholder perspectives and needs. To the extent that new databases or information systems are needed, ORD will need to remain closely involved in how such approaches are developed and implemented.

Chapter 3. ORD's Priority Actions for Climate Adaptation

ORD's priority actions are derived from the vulnerabilities and challenges discussed in the previous section and, to a significant extent, from the Agency-level adaptation priorities presented above. ORD has already made considerable progress toward meeting many of the key adaptation priorities identified in EPA's 2012 Climate Change Adaptation Plan. Although many of these priorities have been an integral part of our research planning, conduct, and communication for the past several years, there are still opportunities for developing a more explicit and robust response to the impacts of climate change, as outlined in the priority actions below.

Identify vulnerable research resources and develop response plans

ORD makes use of various research resources to accomplish its mission, e.g. laboratories, pilot-scale equipment, measurement instruments, and animal care facilities. The first priority action is to assess the potential vulnerabilities of ORD research systems to the impacts of climate change and to develop approaches, in collaboration with OARM, to minimize those and other facilities vulnerabilities. For example, it will be critical to ORD's delivery of high quality research and data--in the face of extreme temperatures and precipitation events as a result of climate change--to maintain continuity of measurements and experiments, and protect archived samples, data repositories, and monitoring networks that may be located at sites remote from ORD facilities. A "self-assessment" of the vulnerabilities of ORD research resources can result in adaptation approaches that are designed to protect not only the facilities themselves, but also the research capabilities associated with the facility and its integrated research systems.

Develop an approach to identify Agency-wide research priorities

Because of the broad implications of climate change, there is a need to "identify cross-EPA science needs related to climate adaptation." Therefore, an ORD priority action is to coordinate discussions between ORD's Deputy Associate Administrator for Science and National Research Program Directors and cross-agency program and regional management to identify and incorporate input on climate adaptation research priorities.

Work with EPA partners to develop effective venues to communicate advances in climate impact and adaptation research

It will be important to effectively identify and communicate advances in the science of climate change and adaptation. One of ORD's priority actions is to play a key role in developing approaches to consolidating and communicating climate change and adaptation research, particularly by engaging at the interagency level, such as with the development of the Global Change Information System by the U.S. Global Change Research Program.

Design extramural research efforts that appropriately incorporate climate change adaptation questions and measures

In October 2011, the Office of Policy and the Office of Grants and Debarment sent a memo[4] to Senior Resource Officials across the agency directing them to incorporate criteria for climate change adaptation into the grant development process. ORD's National Center for Environmental Research (NCER) has already made this directive a standard component of their process for developing requests for application (RFAs).

ORD will consider how to incorporate criteria for climate adaptation into other major financial mechanisms.

[4] "Incorporating Climate Change Adaptation Considerations into Applicable Assistance Agreement Competitive Funding Opportunity Announcements," Memo from J.D. Scheraga and B.S. Binder to Grants Customer Relations Council and Agency Senior Resource Officials, October 18, 2011.

Chapter 4. Measuring and Evaluating Performance

ORD's performance in effectively adapting to climate change should consider two primary areas: (1) identifying Agency-wide research priorities for climate adaptation and (2) incorporating climate change into extramural research efforts.

Agency science priorities

Priority 3.3.6 of the EPA Climate Change Adaptation Plan is to "identify cross-EPA science needs related to climate adaptation," which is one of ORD's Priority Actions for climate adaptation discussed above. Performance will be evaluated and measured by degree of participation from each affected EPA office, identification of cross-agency priorities in a timely manner, and dissemination of consensus priorities. ORD will also continue its efforts to develop decision support tools useful to decision makers at federal, state, and local levels.

Incorporating climate adaptation into extramural research

ORD is already incorporating climate adaptation as a required factor for consideration by extramural research grant applicants if appropriate. One possible metric of evaluation could be to quantify the number of requests for applications (RFAs) that include climate adaptation as a review criterion, or to demonstrate consistent use of climate adaptation review criteria for appropriate solicitations.