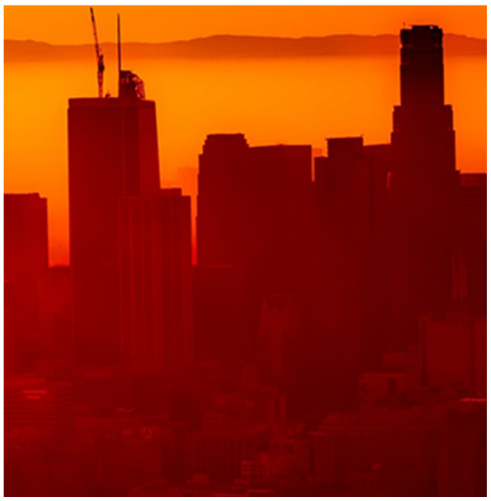
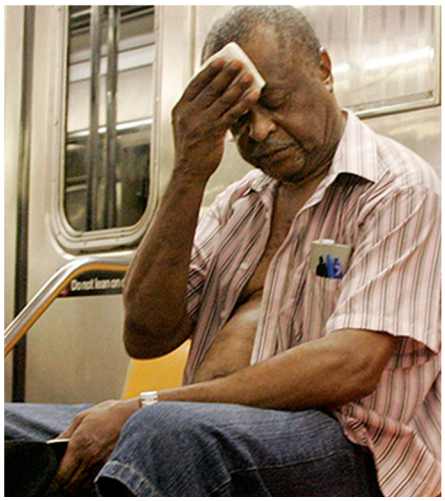
U.S. ENVIRONMENTAL PROTECTION AGENCY

Climate Adaptation Action Plan

OCTOBER 2021





U.S. Environmental Protection Agency

Climate Adaptation Action Plan

October 2021

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 26, 2021

THE ADMINISTRATOR

U.S. Environmental Protection Agency
Policy Statement on Climate Change Adaptation

The impacts of climate change are affecting people in every region of the country, threatening lives and livelihoods and damaging infrastructure, ecosystems, and social systems in communities across the nation. Certain communities and individuals are particularly vulnerable to these impacts, including low-income communities and communities of color, children, the elderly, tribes and indigenous people. Climate change can also exacerbate existing pollution problems and environmental stressors. All of these impacts challenge the U.S. Environmental Protection Agency's ability to accomplish its mission of protecting human health and the environment. As your Administrator, I believe we must take the actions necessary to ensure we continue to fulfill our mission even as the climate changes and work with other federal agencies to increase the resilience of the nation.

In his first week in office, President Joe Biden directed all federal agencies to integrate climate adaptation planning into their missions, programs and management functions to ensure their success in enhancing preparedness for and resilience to the climate crisis. For the EPA, this includes evaluating how climate change might affect our efforts to attain environmental standards given heat waves and more intense storms, increased use of pesticides given expanded lifespans and habitat of insects and impacts of rising seas and storm surges on hazardous waste sites and critical water infrastructure. Identifying strategies that deliver co-benefits for mitigation of greenhouse gases and other pollution, public health, economic growth and job creation, national security and environmental justice will be central to building a more resilient future.

In 2014, the EPA developed its first Climate Change Adaptation Plan and began to mainstream adaptation planning into the agency's work. We have partnered with other federal agencies, states, tribes, territories, local governments and international partners to promote climate resilience across the nation and internationally. Nevertheless, more needs to be done given the magnitude of this global challenge.

I am directing my leadership team, including assistant administrators, general counsel, associate administrators and regional administrators, to update the agency's 2014 Plan and to proactively incorporate climate adaptation planning into the agency's programs, policies, rules and operations, while we also work to reduce greenhouse-gas emissions. Specifically, I direct all EPA offices to work with the Office of Policy to complete or update their Implementation Plans, as relevant, to:

1. Integrate climate adaptation planning into EPA programs, policies and rulemaking processes.

2. Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.

3. Implement measures to protect the agency's workforce, facilities, critical infrastructure, supply chains and procurement processes from the risks posed by climate change.

4. Modernize EPA financial assistance programs to encourage climate-resilient investments across the nation.

The EPA will actively engage with organizations representing overburdened and underserved communities that are more vulnerable to climate impacts to ensure the EPA's adaptation plans reflect the principles of environmental justice and equity.

The Associate Administrator for the EPA's Office of Policy is designated as the agency's Senior Climate Change Adaptation Official and is responsible for working with EPA programs and regions to develop and carry out the activities described in the Action Plan.

Working together, we will act based on science and seize the opportunities that tackling the climate crisis presents.

Michael S. Regan

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1. Introduction

Climate change poses a real and present danger to communities all across the country. Its impacts are already being felt. President Biden's Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, requires federal agencies to develop Climate Action Plans that describe their agency's climate vulnerabilities and the steps it will take to bolster adaptation and increase resilience to the impacts of climate change.

This 2021 EPA Climate Adaptation Action Plan ("Plan") builds on a strong foundation. The agency released its first Climate Change Adaptation Plan in June 2014, followed by 17 Climate Change Adaptation Implementation Plans prepared by its National Environmental Program Offices, National Support Offices, and 10 Regional Offices. The 2021 Plan accelerates action and focuses agency attention on priority actions it will take to fulfill our mission and increase human and ecosystem resilience even as the climate changes.

This Plan will be followed by updates to the 17 *Implementation Plans* produced in 2014. Every office will report on its progress since 2014 and identify future actions to address the agency-wide priorities identified in this Plan. EPA offices will engage with states, tribes, territories, local communities, and other stakeholders when updating their plans.

2. Leadership

EPA's FY 2023-2026 Strategic Plan includes a new goal focused on tackling the climate crisis. The goal includes three objectives that reflect priorities in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*:

Objective 1: Reduce Emissions that Cause Climate Change
Objective 2: Accelerate Resilience and Adaptation to Climate Change Impacts
Objective 3: Advance International and Subnational Climate Efforts

The 2021 EPA Climate Adaptation Action Plan contains five agency-wide priority actions and measures for evaluating performance that support Objective 2. The Plan also supports the agency's and government-wide efforts to advance environmental justice.

The Office of Policy is responsible for the development, management, and execution of this Plan. The Associate Administrator for EPA's Office of Policy is designated as the agency's Senior Climate Change Adaptation Official. The official will work with the agency's Chief Sustainability Officer and with EPA programs and regions to ensure implementation of the agency-wide priority actions and management activities described in this Plan.

The Cross-EPA Work Group on Climate Change Adaptation will support the goals of the Senior Adaptation Official and Chief Sustainability Officer by coordinating the implementation of this Plan across National Programs and Regional Offices. The work group includes representation from every National Environmental Program Office, Regional Office, and National Support Offices. The Senior Advisor for Climate Adaptation in the Office of Policy will chair the work group.

3. Climate Adaptation Vision for EPA

We live in a world in which the climate is changing. According to the U.S. Global Change Research Program, the Earth's climate is warming and changing faster than at any point in the history of modern civilization, primarily because of emissions of heat-trapping greenhouse gases from fossil fuel combustion, deforestation, and land-use change. The changing climate is affecting people's health and livelihoods and damaging infrastructure, ecosystems, and social systems in communities in every region of the nation.

Climate Adaptation Vision

EPA continues to fulfill its mission of protecting human health and the environment even as the climate changes and disruptive impacts increase.

In this changing world, the United States Environmental Protection Agency (EPA) is working to fulfill its mission to protect human health and the environment. EPA will take actions necessary to anticipate and plan for future changes in climate and continue to fulfill its mission while advancing resilience and environmental justice across the nation. EPA will ensure its programs, policies, rules, enforcement and compliance assurance activities, and operations consider current and future impacts of climate change and how those impacts will disproportionately affect certain communities. It will develop and implement measures to protect its workforce, facilities, supply chains, and procurement processes from risks posed by climate change. Through climate change adaptation planning and implementation, EPA will continue to protect human health and the environment by reducing risks from climate change impacts while also working to reduce greenhouse gas emissions.

EPA will also work with its partners across the country to strengthen adaptive capacities and increase the resilience of the nation, with a particular focus on advancing environmental justice, in ways that support attaining the agency's mission and that are within its statutory authority. States, tribes, territories, and local communities, as well as federal and international partners, share responsibility with EPA for protecting human health and the environment. These partnerships are critical for efficient, effective, and equitable implementation of climate adaptation strategies. EPA will also assist international partners that seek assistance on climate adaptation and capacity building issues.

EPA recognizes the need to holistically address mitigation of greenhouse gas emissions to limit the magnitude and rate of climate change while also adapting to those impacts that are unavoidable. In crafting and implementing its adaptation plan, the agency will identify strategies that deliver co-benefits for mitigation of greenhouse gases and other pollution, public health, economic growth and job creation, national security, and environmental justice—all of which will be central to building a more resilient future.

Of particular concern is that the impacts of climate change within and across U.S. regions and across the world will not be distributed equally. Certain communities and individuals are particularly vulnerable to the impacts of climate change, including low-income communities, children, the elderly, and

communities of color, tribes, and indigenous people. EPA will prioritize the most vulnerable populations with the goal of attaining a more equitable, just, and resilient future within and across communities.

EPA's commitments are part of a larger federal effort to pursue actions at home and abroad to avoid the most catastrophic impacts of climate change. As part of this whole-of-government approach, EPA will closely coordinate with other federal agencies on climate change adaptation challenges that cut across agency jurisdictions to improve the efficiency and effectiveness of the combined federal effort.

Definitions

Climate change adaptation **or climate adaptation means taking action to prepare for and adjust to both the current and projected impacts of climate change.**

Adaptive capacity **is the ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.**

Climate resilience **can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.**

Climate change mitigation **refers to actions limiting the magnitude and rate of future climate change by reducing greenhouse gas emissions.**

4. Vulnerability Assessment

This section briefly describes the vulnerabilities of EPA's mission, facilities, and operations to climate change, and is organized by major program areas. Limitations in the adaptive capacity and resilience of our partners, the disproportionate impacts climate change has on certain communities, and the costs associated with implementing changes are also vulnerabilities for EPA across all program areas.

4.1 Air quality

Although tremendous progress has been made improving air quality across the nation, climate change makes it more difficult to attain air quality standards and protect the quality of the air we breathe, posing higher risks to public health, and especially overburdened and vulnerable populations.

- *Tropospheric ozone levels may increase.* Higher temperatures and changes in circulation patterns, such as increased inversions, can increase tropospheric ozone levels and change the length of the ozone season unless ozone precursor emissions are reduced. This threatens attainment of air quality standards, thus necessitating stricter pollution controls, and increases risks of respiratory illness and premature death, especially in vulnerable populations.

Increases in ozone due to climate change may make it more difficult to attain or maintain air quality standards.

- *Particulate matter (PM) concentrations may increase.* More frequent and severe wildfires due to climate change and windblown dust from regions affected by drought diminish air quality. Climate change increases the frequency of temperature inversions, which can trap particulate matter.

- *Climate change can worsen indoor air quality*. For example, changes in ambient humidity, and more frequent heavy rainfalls and floods can increase moisture in buildings, leading to higher mold concentrations, dust mites, bacteria, and other biological contaminants indoors. Wildfire smoke, airborne allergens, and other particle pollution from outdoors can infiltrate homes and buildings. More frequent power outages and use of portable generators can increase the risk of carbon monoxide poisoning indoors. Increased indoor pesticide applications in response to geographic shifts in pests and pest-borne disease can lead to higher exposures.

Lower indoor air quality often disproportionately poses health risks to the young, the elderly, and other highly vulnerable people.

- *Climate change can make stratospheric ozone layer recovery more difficult.* The interactions between the changing climate and stratospheric ozone layer are complex, including changes in chemical transport, atmospheric composition, and temperature. These impacts could pose serious risks to human health, such as increased exposure to extreme heat and UV radiation.

- *Atmospheric deposition of pollutants may harm the environment.* The combination of patterns in the atmospheric deposition of sulfur, nitrogen, and mercury with global climate change has implications for the health of ecosystems, shifts of species, the chemistry of surface waters, and the production of methylmercury and its bioaccumulation in food webs.

- *The ability to measure, communicate, and model air quality may be affected*. Changes in meteorology (*i.e.,* increasing temperatures, changes in circulation, inversions) could alter where maximum concentrations occur, thereby affecting air monitoring network adequacy and EPA's ability to effectively model future air quality and provide useful information to the public. As the climate becomes less predictable and more dynamic, EPA's capacity to manage these worsening endpoints will degrade as the likelihood of extreme events increases and predictions become more difficult.

4.2 Water quality

The quality of the nation's water bodies has substantially improved over the last half century but faces climate-related challenges.

- *Climate change degrades water quality through many pathways.* Impacts include lower stream flows or lake levels that concentrate pollutants; higher temperatures that reduce dissolved oxygen levels; higher carbon dioxide concentrations that increase the acidity of waterbodies; increased runoff of nutrients and other pollutants due to heavier precipitation events; more sewer overflows and wastewater bypasses; and, if combined with sufficiently high nutrient levels and temperatures, more harmful algal blooms, pathogens, and water related illnesses.

Vulnerable and underserved communities may be particularly at risk, from lack of access to clean and safe water as well as from limitations on their ability to prepare for and respond to climate- related events affecting their water infrastructure.

- *Sea level rise, higher temperatures, increasingly frequent and intense storm events, and acidification are degrading coastal ecosystems and reducing water supplies.* Coastal aquifers are already experiencing higher

salinity levels because of rising sea levels that intrude into groundwater supplies. Waterlines and coastline areas are shifting, threatening public safety and property. The inland migration of coastal wetlands can be blocked by human-made structures (*e.g.,* levees, seawall), while higher water temperatures and salinity can alter the location of fish and coastal vegetation. These changes also lead to an increasing presence of invasive species.

- *Changes in snowpack and precipitation will affect water supplies*. Shrinking snowpack, earlier snowmelt, higher evaporation, and reduced precipitation can reduce water supplies and lead to more drying that can increase the risk of wildfires. Higher temperatures can also increase demand for water. Such impacts can increase competition for water across uses, including drinking water, agriculture, energy, recreation, and ecosystem protection.
- *Climate change is already harming water infrastructure.* Drinking water and wastewater treatment infrastructure can be overwhelmed or damaged by flooding, sea level rise, higher storm surges, and extreme events. These impacts may impede the functioning of drinking water intakes and wastewater outflows. They will also challenge the functioning and performance of stormwater infrastructure.

4.3 Contaminated sites

Despite ongoing progress in cleaning up contaminated sites and ensuring the safety of industrial facilities, climate change can exacerbate the already toxic conditions at contaminated sites, including polychlorinated biphenyl (PCB) cleanup sites subject to the Toxic Substances Control Act (TSCA), and can disrupt existing cleanup remedies.

- *Wildfire, more intense flooding and coastal storms, and sea level rise, can release pollution from contaminated sites and/or industrial facilities.* Wildfire ash, water inundation, and flooding may transport pollution out of sites, while increased salinity of aquifers from sea level rise may mobilize formerly stable contaminants. Many industrial areas are located near rivers, bays, harbors and other waterbodies, which makes contaminated sites more prone to releases of toxic materials to waters during floods. The release of these pollutants threatens the quality of waterways and groundwater sources of drinking water. It can also affect other services valued by the public, such as recreational opportunities.
- *Increased temperatures and changes in runoff can adversely affect cleanups.* Droughts can reduce water supplies for water-intensive remedies, while runoff from fire-scorched areas can introduce new contaminants to sites. Contaminants may become more volatile with higher temperatures, and climate change-induced changes in vegetation can affect ecological revitalization efforts. Droughts can increase wildfire frequency and intensity, which can damage containment infrastructure.

Contaminated sites are often in or near overburdened and underserved communities. These communities are likely to bear greater risks and burdens from climate-driven extreme events and to have a harder time recovering.

- *Unexpected, climate-driven conditions can compromise the effectiveness of cleanup remedies selected without those impacts in mind.* Sea level rise, rising groundwater tables, permafrost melt, or storm events may release formerly stable contaminants into groundwater or soil. Treatment

systems, caps, and other remedies may be rendered ineffective. For example, Alaskan landfills situated on melting permafrost are contaminating local water supplies and threatening the health of ecosystems and communities.

- *Climate impacts can increase the amount of debris sent to landfills and can also encroach on the landfills.* Climate change is expected to produce more frequent and powerful natural disasters, which will increase the amount of disaster-related wastes.

4.4 Chemical safety and pollution prevention

Rising temperatures, changes in precipitation, runoff, and soil moisture, and shifts in ecosystems can affect the presence and concentration of chemicals in the environment.

Climate change and subsequent alteration of ecosystems will likely result in changes in where crops are grown and in the presence of pests and diseases. As pests move into new areas, pest management practices and application of pesticides may expand. This may lead to more chemicals present in soil and water. Chemical safety may be affected by changing chemical use patterns resulting from climate change. An increase in the frequency of new pest problems could trigger requests for emergency exemptions under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) if currently registered pesticides are ineffective.

4.5 EPA's facilities and operations

The EPA has identified the following vulnerabilities to the agency's continued safe and efficient operations (elaborated on in parts 6 and 7 of the Plan):

Poor air quality, fires, floods, hurricanes, and other extreme events present risks to EPA employees and contractors engaged in field work, such as sampling, remediation, and inspections.

Increased frequency and severity of extreme weather events can affect the agency's personnel safety, facilities, physical security, and emergency communications. EPA facilities, particularly in coastal areas, can be damaged by more intense high winds, flooding, or storm surges. More intense or frequent flooding can also block road access to EPA facilities. Long-term environmental monitoring assets can be damaged by more high winds, floods, or lightning, which can also disrupt the supplies of electric power to EPA facilities. In addition, changes in water supply or quality can impair the agency's ability to manage its facilities and conduct important research, particularly in drought-prone areas. These impacts can also pose challenges to the EPA labs, researchers, and companies EPA works with to accomplish their work.

Flooding and other climate change hazards can damage records or monitoring equipment needed to evaluate compliance with environmental laws. EPA's enforcement and compliance assurance and monitoring activities are based on records and site visits and/or remote monitoring by EPA and regulated facilities. Agency enforcement and compliance systems assurance activities could be compromised if EPA, state, or regulated facilities were damaged.

The planning and management of emergency operations can be limited by increased frequency and severity of extreme weather. Increased extreme weather can reduce availability of the agency's staff and

resources to support the dispatch of emergency management personnel to assess environmental damage and to test sites for air quality, water quality, and other human health and environmental threats.

5. Agency-wide Climate Adaptation Priorities

EPA has identified priority actions it will take to integrate climate change adaptation into its programs, policies, rules, enforcement and compliance assurance activities, and operations. These priorities represent EPA's commitment to address its programs' vulnerabilities to climate change.

The following tables provide detailed information about the work EPA will do in each of the priority areas.

Climate Adaptation Priorities

1. **Integrate climate adaptation into EPA programs, policies, rulemaking processes, and enforcement activities.**
2. **Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses, and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.**
3. **Implement measures to protect the agency's workforce, facilities, critical infrastructure, supply chains, and procurement processes from the risks posed by climate change.**
4. **Measure and evaluate performance.**
5. **Identify and address climate adaptation science needs.**

Priority Action 1: Integrate climate adaptation into EPA programs, policies, rulemaking processes, and enforcement activities.

Action Description:	As much as possible and consistent with its authorities and available resources, the EPA will account for the impacts of climate change and related environmental justice concerns as it designs, implements, and assesses its programs, policies, rules, and enforcement and compliance assurance activities to ensure they are effective and resilient to climate change. The agency will train its management and staff to integrate adaptation into decision-making processes. EPA will develop decision-support tools and provide technical assistance to enable staff to integrate climate adaptation into programs and to identify strategies that will also

	yield co-benefits, such as reducing greenhouse gases and other pollution, and advancing environmental justice.
Action Goal:	Effectively integrate climate adaptation planning into EPA's programs, policies, rulemaking processes, and enforcement activities.
Agency Leads:	Office of Policy and Office of Enforcement and Compliance Assurance
Risk or Opportunity:	The opportunity is to enhance the agency's ability to fulfill its mission of protecting public health and the environment even as the climate changes.
Scale:	The agency will implement this priority across all the Programs and Regional Offices.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	To successfully achieve this priority action, EPA will: **<u>Integrate climate change adaptation into rulemaking processes</u>** EPA will integrate information about the impacts of climate change into rulemaking processes consistent with its authorities. EPA will consider a variety of "entry points," including the development of the rule itself; related policy and guidance development; outreach to stakeholders, especially overburdened and underserved communities that are more vulnerable to climate impacts; post-rule permitting; and monitoring and enforcement and compliance assurance activities. EPA will update guidance on rulemaking processes to include more explicit consideration of climate change. EPA developed this process to guide the agency's rulemaking activities from the start of the rulemaking process through the analysis of regulatory options to the final publication of a regulation. EPA will integrate climate adaptation into these processes by: • **Pinpointing process points where climate change adaptation considerations warrant identification and analysis.** The rulemaking process includes opportunities to discuss climate change adaptation considerations, both internally and with stakeholders. • **Developing guidance documents and training rule writers to understand the implications of climate change impacts and incorporate these considerations into rulemaking.** EPA will develop a guide for climate change adaptation and provide training in the same

way it has issued guidance on addressing children's health and environmental justice for all rulemakings.

- **Engaging the most vulnerable communities from the beginning of the rulemaking process.** Meaningful engagement will help EPA to understand the disproportionate vulnerabilities of certain communities and consider these vulnerabilities throughout the rulemaking process.

Integrate climate adaptation criteria into financial mechanisms

The agency will modernize its financial assistance programs to encourage and support smarter, more climate-resilient investments by states, tribes, territories, and local communities. It will do so by integrating climate adaptation considerations, as appropriate, into discretionary and non-discretionary financial mechanisms. This includes agency grants, cooperative agreements, loans, technical assistance, contracts, and awards where the project's desired outcomes are sensitive to climate change (*e.g.,* clean air; safe drinking water; site cleanups).

Integrate climate adaptation remedy selection for cleanup sites

EPA will update and develop policies addressing sea level rise in remedy selection for cleanup sites managed by EPA under RCRA and TSCA. EPA will develop guidance on how to address sea level rise in PCB cleanup approvals with input from PCB Regional Coordinators. EPA will update its Guidance on RCRA Corrective Action Decision Documents: Statement of Basis to address sea level rise considerations.

Develop Decision-Support Tools that Enable EPA Staff and Partners to Integrate Climate Adaptation Planning into their Work

Many standard analytical practices may be less effective unless they account for climate change. For example, standard methods used for estimating the probability and expected frequency of floods for flood plain mapping, designing infrastructure, and estimating runoff of pollutants and sediments entering rivers and streams are based on historical data rather than scientifically credible expectations of future conditions. EPA and its partners need to alter their standard practices and decision routines to account for a continuously changing climate and how climate change will disproportionately affect certain communities.

The development of decision-support tools plays a central role in EPA and our stakeholder's efforts to adapt to climate change. Following the recommendations of the National Research Council, EPA is committed to

developing decision-support tools to improve the quality and efficacy of decisions sensitive to climate change and related environmental justice considerations. These tools will empower EPA staff and their partners to consider climate, as well as changes in social and economic conditions that are influenced by climate change. They will enable staff to integrate climate adaptation and justice considerations into their work and decision-making processes. Priority will be given to the development of tools that support the agency's direct program implementation requirements and benefit multiple end users within and outside EPA.

Update National Program and Regional Office Implementation Plans

Upon publication of this Plan, the EPA National Program Offices and Regional Offices will update their respective Implementation Plans to report on progress they have made integrating climate adaptation into their work and to identify actions they will take to address the five agency-wide priorities identified in the new EPA Climate Action Plan.

The updated Implementation Plans will ensure climate adaptation and resilience are a high priority within the core missions and priorities of the Program and Regional Offices. In addition, the Office of Policy and the Office of Enforcement and Compliance Assurance will develop plans for the first time. All Program and Regional Offices will report annually on progress with implementation efforts.

Performance:

The agency will monitor progress using the following measures:

Long-Term Measure:

- Starting in 2021, EPA will increase integration of climate change adaptation into programs, policies, and rules and is committed to developing and implementing Climate Adaptation Implementation Plans for all EPA Programs and Regions.

Interim Measures:

- Program and Regional offices will develop and implement Climate Adaptation Implementation Plans that contain goals, measures, commitments, and implementation strategies.
- EPA programs will develop adaptation training for programs and staff.
- EPA will train managers and staff on how to integrate climate adaptation into their job duties.
- The number of agency employees who access the internal Adaptation Resource Center and/or the public ARC-X system for programmatic tools and information will increase by 25% per year.

Intergovernmental Coordination:	EPA will support capacity building for state, tribal, territorial, local, and international partners by working with them to develop and use effective decision-support tools. EPA will coordinate with other Federal agencies on developing decision-support tools with partners, when appropriate.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	• Adaptation training for all new EPA employees. • Training for partners: *Local Government Climate Adaptation Training* and *Understanding Climate Change Impacts on Water Resources.* • Visual mapping tool: Region 1 tool to assist EPA in assessing climate impacts on contaminated sites. • Integrating climate change into Superfund cleanup processes: Training and technical support for remedial project managers on conducting site-level risk assessments that incorporate information on potential impacts of climate change effects.

Priority Action 2: Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses, and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.

Action Description:	States, tribes, territories, and local governments, in partnership with EPA and other Federal Agencies, share responsibility for increasing resilience and adapting to climate change in a manner that advances environmental justice. These partnerships will be critical for efficient, effective, and equitable implementation of climate adaptation strategies. EPA's Regional and Program Offices will work with their partners, engage local stakeholders, and use a diversity of approaches to build adaptive capacity and encourage locally relevant climate action. The EPA will support states, tribes, territories, communities, and businesses by producing and delivering the training, tools, technical support, data, and information they need to adapt and increase resilience to climate change. The agency will also support more climate-resilient investments by states, tribes, territories, and local communities and encourage the use of more climate-friendly adaptation measures (*e.g.,* solutions that reduce, rather than increase, energy use).

Action Goal:	Build and strengthen the adaptive capacity of states, tribes, territories, communities and businesses.
Agency Lead:	Office of Policy
Risk or Opportunity:	The opportunity is to help increase the resilience of the nation to the impacts of extreme weather events and climate change.
Scale:	The agency will implement this priority across all the Programs and Regional Offices.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	To successfully achieve this priority action, EPA will: **Implement Mechanisms for Building Adaptive Capacity** • Training: increasing awareness of ways climate change may affect their ability to implement effective programs. • Tools and information: providing access to tools, data, and information to support decision making. • Technical assistance: working with states, tribes, territories, and communities to help develop and implement locally led plans • Financial incentives: supporting climate-resilient investments in communities **Advance Environmental Justice** The agency places special emphasis on working with overburdened and vulnerable populations to increase their resilience to climate change. Such populations include communities of color, low-income communities, children, persons with disabilities, the elderly, tribes, and indigenous people These groups and individuals may be especially vulnerable to climate change impacts due to a variety of factors including, higher pollution burdens, disproportionate exposure to environmental contaminants, lack of financial resources, limited access to quality health care, and other barriers.

For example, the elderly are more vulnerable to heat stress because they are often in poorer health, have chronic diseases, and are less able to regulate their body temperature during periods of extreme heat. Communities of color often face disproportionate climate risks from the continuing impacts of inequitable treatment and discrimination.

The Agency will support the most overburdened and vulnerable communities to improve their capacity to prepare for, cope with, and recover from climate change impacts.

Climate change poses risks to children's health. It increases children's risk of becoming ill or dying due to extreme heat; decreases lung maturation due to exposure to ground-level ozone and particulate matter; increases asthma and other allergic respiratory diseases from exposure to aeroallergens and ozone, among others; increases illness from harmful algal blooms and other waterborne pathogens; exacerbates adverse impacts on cognitive development and the capacity of the body to regulate emotions; and has the potential to worsen depression, anxiety, phobia, and panic because of exposure to disasters and displacement.

The EPA's efforts to anticipate and adapt to the effects of climate change will help the most vulnerable people and places reduce their exposure to climate change and improve their capacity to prepare for or avoid adverse impacts. For example, EPA will actively engage with community-based organizations from overburdened and underserved communities that are more vulnerable to climate impacts to ensure National Program and Regional Office Implementation Plans reflect the principles of environmental justice and equity.

The agency will make special efforts to work with those who have been historically underrepresented in decision making, such as tribal nations and communities of color, to develop adaptation plans that improve their capacity to prepare for, cope with, and recover from climate change impacts. The agency will also continue to focus on the life stages during which people are most vulnerable to climate change. Development of effective, equitable, and just adaptation plans and strategies will require EPA to identify how pre-existing social inequities limit a community's adaptive capacity and respond accordingly.

Support Tribes and Indigenous Peoples to Increase Adaptive Capacity

EPA recognizes that tribes and indigenous peoples are disproportionately vulnerable to the impacts of climate change, due in part to their dependence on specific geographic areas for their livelihoods; unique

cultural, economic and political characteristics; and limited resources to prepare for, respond to and recover from climate-related hazards.

The agency, in keeping with the Federal Trust Responsibility, will assure that tribal concerns and interests are considered whenever EPA's actions and/or decisions may affect Indian country. Pursuant to EPA's Policy on Consultation and Coordination with Indian Tribes, EPA engages in government-to-government consultation with tribes when actions or decisions may affect their tribal interests. EPA is committed to engaging in timely consultation and coordination on a government-to-government basis to implement this plan and help tribes address their climate adaptation concerns.

The EPA Policy on Environmental Justice for Working with Federally Recognized Tribes and Indigenous Peoples (EJ Tribal/Indigenous Policy) guides how EPA conducts work with federally recognized tribes, indigenous peoples, other federal and state agencies, and other stakeholders in Indian country and throughout the United States to advance environmental justice, such as climate justice. EPA engages and works with indigenous peoples (as defined in the EPA Tribal/Indigenous Policy) separately and differently from our work with federally recognized tribes. Our work with indigenous peoples may include support for community-based climate adaptation efforts.

The agency will support the development of climate science to meet priority research needs and decision-support tools useful to the tribes and indigenous peoples. EPA will work with tribes and indigenous peoples to identify and support the use of climate change relevant traditional ecological knowledge (TEK) in decision making. EPA recognizes that TEK, as an expression of key information that links historical, cultural, and local ecological conditions, may help tribes and indigenous peoples choose how they adapt to climate change while also protecting resources and the uses of those resources important to their culture and livelihood. These efforts will leverage existing EPA partnerships with the tribes, tribal networks, indigenous peoples, and indigenous networks.

On a national level, EPA will work with other Federal agencies to collectively support tribes and indigenous peoples as they assess their vulnerabilities to climate change and plan and implement adaptation actions. Regional Offices will seek opportunities to work together with other Federal agencies' regional offices to provide strong support to tribes and indigenous peoples on their climate change challenges.

Performance:	The agency will monitor progress using the following measures: <u>Long-Term Measure</u>: • EPA will strengthen the adaptive capacity of states, tribes, territories, local governments, environmental justice organizations, community groups, and businesses, with a particular focus on advancing environmental justice, by increasing the number EPA has assisted, through grants or technical assistance, to 1) develop or update their climate resilience/adaption plans and/or 2) implement an action to anticipate, prepare for, and adapt to climate change. <u>Interim Measures</u>: • Increase the number of climate adaptation or community resilience-building planning or implementation efforts in overburdened and underserved communities in which EPA contributes resources, technical assistance, and/or actively participates. • Increase the number of unique and returning external visitors to the ARC-X system. • Increase the number of state-level and regional-level versions of the ARC-X system developed by universities with EPA support. • Include climate adaptation evaluation criteria in Grant Guidance and Requests for Proposals. • Increase the number of states, territories, local governments, environmental justice organizations, community groups, and businesses, with a particular focus on advancing environmental justice, that have incorporated climate change adaptation into the implementation of their environmental programs supported by major EPA financial mechanisms. • Support federally recognized tribes in incorporating climate adaptation into at least one program supported by an EPA grant.
Intergovernmental Coordination:	EPA will consult and partner with states, tribes, territories, environmental justice organizations, community groups, businesses, and other federal agencies to successfully implement this priority action.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	• EPA's Climate Change Adaptation Resource Center (ARC-X) is an innovative system designed to help all 40,000 communities across the United States anticipate, prepare for, and adapt to the impacts of

climate change (www.epa.gov/arc-x). It provides users with an integrated package of information tailored specifically to their needs.

- EPA has supported the development of state-level and regional-level versions of the ARC-X system by universities. The Indiana University ERIT system is one example (https://eri.iu.edu/erit/index.html).
- EPA has modernized the financial assistance programs below to encourage climate-resilient investments. These programs now incorporate specific criteria, allow for adaptation planning, or otherwise encourage communities to anticipate, plan for, and adapt to the changing climate. Examples include:
    - Brownfields grants
    - Indian General Assistance Program
    - Environmental Justice Small Grants Program
    - State Revolving Funds
    - Wetland program grants
- EPA has provided technical support:
    - Support for tribes in the Pacific Northwest and Alaska: New EPA Region 10 webpage providing support to tribal communities on climate adaptation issues in Alaska, Idaho, Oregon, and Washington.
    - Providing adaptation planning assistance to Tribes: Support for the Pala Band of Mission Indians to build Tribal capacity to address the health effects of climate change.
- EPA has provided tools:
    - EJSCREEN: Climate is incorporated into EPA's environmental justice mapping and screening tool.
    - Climate Resilience Evaluation and Awareness Tool (CREAT): A software tool to assist drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing the related risks at their individual utilities.
    - Stormwater Calculator with Climate Assessment Tool: Desktop application that estimates the annual amount of rainwater and frequency of runoff from a specific site anywhere in the United States. The calculator includes future climate vulnerability scenarios.

Priority Action 3: Implement measures to protect the agency's workforce, facilities, critical infrastructure, supply chains, and procurement processes from the risks posed by climate change.

Action Description: The EPA is committed to the safety of its personnel, the integrity of its buildings, the efficiency of its operations, and the sustainability of the communities in which its facilities are located. However, the impacts of climate change, including more frequent and intense storms, wildfires,

	water shortages, and sea level rise, pose risks to meeting these objectives. Climate change could disrupt the operation of the agency's programs, compromise the safety of its staff, or affect the integrity of its physical infrastructure. Adaptation planning to protect EPA's workforce, operations, underlying infrastructure, and supply chains is crucial. Where appropriate, EPA will develop and implement new measures to protect its workforce and increase the resilience of its facilities and operations to climate change. More detailed information about the specific actions the agency will take to ensure climate-ready sites and facilities appears in Part 7 of this Plan. Information about the specific actions the agency will take to ensure a climate-ready supply of products and services appears in Part 8 of this Plan.
Action Goal:	Increase the resilience to climate change of the agency's facilities and operations, including critical supply chains.
Agency Lead:	As the office within EPA responsible for facilities, transportation, security, health and safety, human resources, grants, and procurement, the Office of Mission Support (OMS) is responsible for ensuring the safe and continued operation of the agency's facilities, contracts, grants, and human resources programs.
Risk or Opportunity:	Without specific action, climate change may (1) adversely affect critical facilities and assets across the nation, and (2) jeopardize the availability of essential services and supplies.
Scale:	This agency will implement these actions at mission-critical assets across the nation.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	• Where possible, EPA will enhance 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 the General Services Administration and other government agencies, including local government agencies, to account for climate change in the location, design, and construction of new facilities, or when new buildings are leased so the agency invests in long-term climate-smart infrastructure and operations.

Performance:	The agency will monitor progress using the following measures: <u>Long-Term Measure for Facilities</u>: • EPA will initiate priority climate resiliency projects for EPA-owned facilities within 24 months of a completed facility climate assessment and project prioritization. <u>Interim Measures for Facilities</u>: • EPA will 1) define climate resiliency for EPA facilities and 2) conduct a climate assessment of all 20 owned facilities to determine which facilities require investments to protect against climate and weather change. • EPA may prioritize identified projects based on multiple factors – ability to execute, impact on facility resiliency, cost, etc. • EPA will initiate 100% of the highest priority projects within 24 months of assessment completion and prioritization. <u>Interim Measures for Acquisitions</u>: To further advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA will: • Develop and implement acquisition policy to incorporate climate change considerations in the advance acquisition planning process (requirements and solicitation development for contractor response) through consideration and assessment of climate change risks and climate change innovations associated with the goods and services to be procured. • Develop and implement a Supply Change Management Program which will include assessment of supply chain risk, with emphasis on climate change risk assessment and mitigation to ensure consistent monitoring. • Perform an in-depth assessment of climate change supply chain risk for EPA mission critical contracts by applying the "GSA Framework for Managing Climate Risks in Federal Supply Chains" and the seven screening questions provided by CEQ.
Intergovernmental Coordination:	OMS works in close coordination with the Federal Chief Sustainability Officer, the General Services Administration, and other Federal agencies.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.

Examples of Accomplishments to Date:	EPA has made progress in both mitigating greenhouse gas emissions and preparing for climate change. The agency's Strategic Sustainability Performance Plan (SSPP), for example, outlines numerous goals and achievements in reducing the agency's greenhouse gas 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 prepare for natural disasters and other events that could interrupt agency operations.

Priority Action 4: Using Measurement, Data and Evidence to Evaluate Performance

Action Description:	The EPA recognizes the importance of monitoring and evaluating performance and acting on the lessons learned. The EPA will evaluate its climate change adaptation actions on an ongoing basis to assess its progress toward (1) integrating climate adaptation throughout the agency's programs, policies, rules, enforcement and compliance assurance activities, and operations; (2) modernizing financial assistance programs in ways that encourage climate-resilient investments; (3) providing the information, tools, training, and technical support that communities need to increase resilience and adapt to climate change; and (4) advancing equity and justice to support the needs of the most overburdened and vulnerable communities in responding to climate change. Through ongoing evaluation, the agency will learn how to effectively integrate climate adaptation into its activities. The EPA will evaluate what worked and why, as well as what didn't work and why not. Based on the lessons, the EPA will adjust the way adaptation is integrated into its activities. The EPA will track and evaluate its progress toward integrating climate adaptation into the agency's programs, policies, rules, enforcement and compliance assurance activities, and operations and its progress in supporting partners to do the same. EPA is committed to building and using data, measurement, and other evidence to evaluate the effectiveness of climate adaptation tools, activities, program management, and policy approaches. Through ongoing evaluation, the agency will learn how to integrate climate adaptation planning more effectively across its programs and across the country. Adaptation to climate change will happen in stages, and measures should reflect this evolution. The earliest changes in many programs will be changes

	in knowledge and awareness (*e.g.,* increase in the awareness of EPA staff and their external partners of the relevance of adaptation planning to their programs). Building on this knowledge, they then will begin to change their behavior (*e.g.,* increase their use of available decision support tools to integrate adaptation planning into their work). Finally, in the long term, adaptation planning efforts will lead to changes in conditions (*e.g.,* percentage of flood-prone communities that have increased their resilience to storm events) to directly support EPA's mission to protect human health and the environment. The EPA will establish long-term measures under the agency's FY 2022-2026 Strategic Plan, as well as supporting annual measures in the FY 2023 Congressional Justification and appropriate internal metrics.
Action Goal:	Through ongoing evaluation, the agency will learn how to effectively integrate climate adaptation into its activities.
Agency Lead:	Office of Policy
Risk or Opportunity:	Limitations on the agency's ability to use particular data collection techniques (*e.g.,* surveys of local government officials to evaluate the usefulness of EPA tools), will limit its ability to conduct informative evaluations.
Scale:	All EPA Programs and Regions.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	The EPA will use a combination of long-term and interim measures to assess progress. However, it will be an ongoing challenge to measure the direct impact of EPA's adaptation planning activities on the resilience of its programs and on the human health and environmental outcomes it is striving to attain. Long-term measures assess the climate adaptation outcomes we are ultimately trying to influence, but the results often come months or years after EPA provides support. The interim measures are more immediate actions EPA staff can take (*e.g.,* including adaptation criteria in grant solicitations, training, **EPA will use performance measurement, data analysis, evaluation, and other evidence-building activities to understand which climate adaptation strategies work, what can be improved, and what information gaps exist.**

	development of decision support tools) to move us closer to achieving our climate adaptation goals.
Performance:	The agency will monitor progress using the following measures: <u>Long-Term Measure</u>: • EPA will measure its progress on enhancing the adaptive capacity of states, tribes, territories, and communities by creating a robust measurement system that includes both output and outcome measures. <u>Interim Measures</u>: • EPA will include Climate Adaptation in its 2022-2026 Strategic Plan and develop both Long-Term Performance Goals and Annual Performance Goals to track progress. • EPA will update this plan and report on progress annually. • EPA will evaluate progress on its climate adaptation support for overburdened and vulnerable communities.
Intergovernmental Coordination:	The agency will work closely with OMB to seek approval for the use of survey mechanisms.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	• Using Google Analytics, EPA has monitored the use of its Climate Change Adaptation Resource Center (ARC-X) from October 2016 through June 2021. Data indicate: (1) a steady increase in annual repeat, unique users of the system, and (2) usage of the system in all 50 states. Desired enhancements to the system have been identified.

Priority Action 5: Identify and address climate adaptation science needs.

Action Description:

Implementing effective strategies to adapt to the changing climate requires that decisions be grounded in the best available science on climate change risks, impacts and vulnerabilities, and adaptive management practices. Throughout EPA, there is a growing need for up-to-date information on the existing data and information, models, and tools relevant to climate change adaptation.

EPA has made progress conducting climate-related research and developing models and tools. EPA will support an agency-wide approach to identify and update priority research needs, including social science research, related to climate change adaptation.

EPA's Office of Research and Development will reinforce scientific integrity and coordinate with the Program and Regional Offices to identify and address priority research needs for the entire agency to support the integration of adaptation planning into the agency's activities.

EPA will advance a rigorous exploratory and applied climate adaptation science program by conducting climate-related research in its labs and centers, supporting research through its grants program, conducting policy-relevant assessments, communicating research and assessment results, and delivering innovative and sustainable solutions. EPA will coordinate and collaborate with other agencies and the scientific community to provide access to the best available science, technologies, and practices.

Action Goal:	Production and delivery of research results that benefit multiple Programs and Regional Offices across EPA, our partners, and others across the world.
Agency Lead:	Office of Research and Development: The EPA Office of Research and Development (ORD) has the primary responsibility for coordinating with the Program and Regional Offices to identify the priority science needs of the agency and its partners. ORD is also EPA's primary representative to the U.S. Global Change Research Program (USGCRP).
Risk or Opportunity:	The opportunity is the production of research results that yield benefits to multiple EPA Programs and Regions, as well as partners across the nation.
Scale:	ORD will engage all the EPA National Program Offices and the 10 Regional Offices, other federal agencies, and partners across the nation.

Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process as new scientific information emerges (*e.g.,* with the production of the 5th National Climate Assessment).
Implementation Methods:	• A Subgroup of the Cross-EPA Work Group on Climate Adaptation will be established to oversee this priority action. ORD will chair the Subgroup. • The Subgroup will adhere to EPA's Scientific Integrity Policy. This policy provides a framework intended to ensure scientific integrity throughout the EPA and promote scientific and ethical standards. • To facilitate the ongoing sharing of information, the EPA will establish a central repository of information and EPA tools related to climate adaptation. The repository will also include information ("lessons learned") about methods for integrating climate adaptation that EPA offices have used that may be applicable to other users within the agency or by EPA's federal, state, tribal, territorial, or local government partners. EPA will collaborate with other federal agencies to develop and maintain a means to ensure access to climate adaptation data. • ORD resources will be used to establish an EPA Regional Climate Science Network which will address the growing need in each Regional Office for local and region-specific scientific and technical expertise to inform citizens, communities, and agency decision makers in their efforts to anticipate, prepare for, adapt to, and recover from climate-driven extreme events and their impacts to clean air, water, and land.
Performance:	The agency will monitor progress using the following measures: Long-Term Measure: • EPA will have a rigorous exploratory and applied climate adaptation science program that provides climate-relevant data, tools and information to EPA staff and partners. Interim Measures: • EPA will assess priority climate adaptation science needs for its Program and Regional Offices and develop a proposal for meeting those needs. • ORD will support EPA Programs and Regions to base climate adaptation decisions on sound science and in alignment with the Scientific Integrity Policy. • EPA will establish a central repository of information and EPA tools related to climate adaptation.
Intergovernmental Coordination:	• ORD will play a major role representing EPA's needs to other federal agencies and in partnering with other organizations, including those based in–or partnering with–overburdened and vulnerable communities, to develop nationally and internationally relevant research and information and the means to deliver that information to users at all levels.

	• ORD will coordinate with the U.S. Global Change Research Program (USGCRP) and its 13 member agencies to advance a rigorous exploratory and applied climate adaptation science program and to engage partners across the nations to identify their priority research needs. • ORD will support development of the 5th National Climate Assessment by contributing to interagency coordination and leadership, authorship, and review.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action. Establishment of an EPA Regional Climate Science Network will require significant additional funds and personnel in order to support all 10 EPA Regional Offices.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	• Development and updating of EPA's Scientific Integrity Policy. • EPA Contributions to the 4th U.S. National Climate Assessment. • EPA Contributions to the USGCRP report, "The Impacts of Climate Change on Human Health in the United States" • ORD contributions to the development of numerous decision support tools for climate adaptation, such as the BASINS environmental analysis system designed to help regional, state, and local agencies perform watershed- and water quality-based studies.

6. Enhancing Climate Literacy of the EPA Workforce and Our Partners

An organization must craft and adopt new means of achieving its goals as circumstances change. To respond to climate change, EPA needs its personnel and partners to adopt new ways of achieving its mission. EPA will build capacity through ongoing education and training. Equipped with an understanding of projected climate-related changes and adaptation approaches and trained on how to use new decision-support tools, EPA and its partners will be better able to incorporate climate adaptation into their plans and decisions.

EPA's training, education, and outreach programs focused on climate adaptation are evolving. EPA will develop, update, and expand the existing climate adaptation training modules for its staff and partners. The training will have two primary goals. The first is to increase awareness about the importance of climate adaptation and encourage all EPA staff and partners to consider the changing climate in the normal course of business. The second is to introduce its staff and partners to specific methods and tools for integrating climate adaptation into decision-making processes.

7. Agency Actions to Ensure Climate-ready Sites and Facilities

Climate resiliency has been an integral component of EPA's site planning and facility support for more than a decade. In preparation for severe weather effects on its buildings, infrastructure, operations, and mission-critical activities, EPA's Office of Mission Support (OMS) has conducted climate resiliency assessments at several key facilities in coastal, plains, and mountain regions to identify vulnerabilities and opportunities for climate readiness and adaptation. EPA will conduct additional facility climate resiliency assessments to identify new vulnerabilities and determine best practices for withstanding severe weather events, enhancing IT security, ensuring resilient power supplies, and continuing EPA's mission-related work in the event its buildings or operations are compromised by climate change.

In addition to resiliency assessments, EPA employs a variety of management strategies to ensure its buildings are safe, resilient, and sustainable. The agency will continue to audit its facilities for safety, physical security, and sustainability opportunities such as energy reduction, water conservation, and fleet efficiency to reduce the agency's greenhouse gas emissions and climate change impacts. EPA will also use its master planning process, which revisits facility plans every five years, to consider renovations and other projects to enhance resilience and reduce the greenhouse gas emissions associated with its operations.

Based on the results of its assessments and the efficiency measures it has reported in the Federal Energy Management Program's Compliance Tracking System (CTS), EPA will update its master plans with projects that reinforce facilities and operations to withstand and mitigate both short- and long-term climate change impacts. Through its annual Operating Plan, EPA will identify both Buildings and Facilities (B&F) and non-B&F funding, as well as the staff resources necessary to conduct some of the following efforts, where feasible, to enhance building and operational resilience:

- Strategically relocate mechanical equipment, IT infrastructure, and other mission-critical equipment if it can be disrupted by heavy wind, rain, floods, or fires.
- Review site drainage and landscaping to prevent flooding issues from intense storms.
- Commission new buildings and review existing building envelope systems for compliance with updated codes on water and wind resistance.
- Develop drought resiliency strategies for water reuse and reduction in drought-prone areas and consider creating "clear zones" around facilities in areas with wildfire risks.
- Assess and address employee thermal comfort during extreme temperature shifts through design, while also addressing additional burdens on energy and water use during peak utility use periods.
- Harness the power of procurement to ensure that the mechanical and operational equipment for its facilities—as well as materials, furnishings, and fixtures—are resilient to and mitigate the effects of

EPA will work to ensure that its adaptation efforts do not result in adverse impacts on already vulnerable, underserved or pollution-burdened communities. EPA will give priority to addressing the impacts of climate change in and around its facilities located in these communities.

climate change (*e.g.,* windows, roofing, and cladding materials used in coastal areas will be both energy-efficient and able to withstand high-level hurricane winds and floods).

A variety of agency management systems will ensure comprehensive project evaluation and coordination among key real estate, safety, security, and sustainability staff at EPA, as well as with the U.S. General Services Administration (GSA). Each project is assigned a coordination checklist, provided by EPA's Office of Administration, which is currently being updated to incorporate questions about climate resiliency and greenhouse gas mitigation. The coordination checklist supports the required National Environmental Policy Act reviews conducted on all construction projects. EPA also has a GreenCheck process in place to review design drawings, specifications, and construction plans for any new construction or major repair or renovation project; this process will ensure that climate-resilient designs, materials, and methods are incorporated throughout the building process.

OMS has already identified more than 14 large and 120 small projects to enhance EPA facility resilience, support resilient power and water supply, and ensure continuity of operations and computation in the event of severe weather events. EPA will coordinate with local utilities, fire safety officials, GSA, and other stakeholders to implement resiliency best practices and prepare contingency plans as needed.

8. Ensuring a Climate-ready Supply of Products and Services

To advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA has done a very general, high-level assessment of potential types of contract work that may be at risk from climate change-related events. Some examples include:

Contracts requiring personnel performing essential work onsite. Many EPA facilities run 24/7 with a minimum number of personnel needed to maintain operations and security, including animal care contractors who must be on site and laboratory testing contractors who must be on site to ensure samples in progress are not affected. Also, some equipment in EPA facilities need to be maintained by technical contracts involving personnel with specialized expertise, such as high-dollar-value boilers for maintaining facilities and nuclear magnetometers, which, if not properly maintained, could cease to function and even destroy the buildings where they are housed. Additionally, EPA contractors maintain emergency response and other equipment in warehouses across the country; a lack of routine maintenance or calibration of that equipment could render it ineffective.

In a climate change-related emergency event, contractor personnel may not be able or willing to come to the facility to perform the essential work, and critical supplies needed to continue their performance may be in jeopardy. Adaptation could possibly include developing an "essential worker" clause for relevant contracts and broadening the scope of acquisition planning to identify and consider alternative sources to supplement or replace reduced or unavailable contractor capabilities and capacities.

Contracts for Superfund remediation and emergency response. Superfund sites that are in the process of clean-up may need to be temporarily closed during a climate change-related event, requiring

contractors to secure the site from further contamination and unauthorized physical access to the site. Adaptation could include assessing the current portfolio of Superfund remediation and emergency response contracts to ensure adequate site coverage.

Contracts for desktops, laptops, and mobile devices. Disruption in the supply chain from increased storms and drought can compromise access to the materials and other components necessary to manufacture these goods domestically and abroad. Adaptation could possibly include increasing the variety of devices that are deemed "Agency Standard" to allow for more flexible sourcing and supply chain diversity.

Contracts involving critical intellectual property. Intellectual property could be rendered inaccessible due to contractor unavailability because of a climate change-driven event. Adaptation could include more extensive market research to identify alternative systems and applications to reduce reliance on custom or proprietary systems, software, and applications.

To further advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA will:

- Develop and implement acquisition policy to incorporate climate change considerations in the advance acquisition planning process (requirements and solicitation development for contractor response) through consideration and assessment of climate change risks and climate change innovations associated with the goods and services to be procured.
- Develop and implement a Supply Change Management Program that will include assessment of supply chain risk, with emphasis on climate change risk assessment and mitigation to ensure consistent monitoring.
- Perform an in-depth assessment of climate change supply chain risk for EPA mission critical contracts by applying the "GSA Framework for Managing Climate Risks in Federal Supply Chains" and the seven screening questions provided by the Council on Environmental Quality.

Conclusion: Contribution to a Healthy and Prosperous Nation

The priority placed on integrating climate adaptation within EPA complements efforts to encourage and integrate climate adaptation across the entire federal government. Federal agencies now recognize that climate change poses challenges to their missions, operations, and programs. Ensuring the capacity of federal government agencies to maintain essential services and achieve their missions in the face of climate change is vital to ensuring the resilience of the entire nation. The federal government has an important and unique role in climate adaptation but is only one part of a broader effort that must include public and private partners throughout the country and internationally. Partnerships with states, tribes, territories, local communities, other governments, and international organizations are essential.

EPA's leadership and commitment to building the nation's adaptive capacity are vital to its mission of protecting human health and the environment. Working with its partners, EPA will help promote a healthy and prosperous nation that is more resilient to a changing climate.

epa.gov/climateadaptationplan

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