



Building Climate-Resilient Communities for All: Suggested Next Steps for Federal Action in the US

Climate risks are no longer just a concern for future generations—they are here now. Costly and often devastating effects of flooding, drought, storms, wildfires, and extreme heat are already being felt with growing intensity across the United States and the world. This is one reason why reducing climate-related risks—by building climate resilience—is drawing bipartisan and broad geographic support among the American public and politicians.

Under President Joe Biden, the federal government has made climate resilience a priority and has already committed more executive action, capacity, information resources, and funding to it than any previous administration. Since January 2021, the federal government has begun to build a whole-of-government approach to resilience; introduced policies and regulations to recognize financial climate-related risks; engaged with state, local, and tribal governments and community organizations to help build resilience equitably from the ground up; and expanded access to data, science, and tools required for better climate-related risk decision-making.

And yet, despite the historic nature of these resilience-building efforts, they are not enough. The scale of climate-related risk and the pace of intensifying change is outstripping actions taken so far. Federal agencies are responding to increasingly frequent megadroughts, heat waves, raging wildfires, and extreme weather events in piecemeal fashion. Without a national strategy supported by clear and consistent directives and the ability to mobilize federal-to-local action, current efforts tend to be incremental and inadequate. Opportunities to get ahead of such events and their impacts are missed.

To meet these challenges, the work underway and proposed by the federal government could be better coordinated and communicated. In this policy brief, we recommend three catalytic steps to amplify existing executive and legislative actions (see box).

Now is an opportune moment to take bold and comprehensive executive and legislative action to adapt to a changing climate and to build national resilience. The federal government has the tools and the public support to make this a reality.

Three catalytic actions that can accelerate building climate resilience:

- 1** [Communicate risk-based investment decision-making](#)
- 2** [Bolster federal-to-local capacity and coordination](#)
- 3** [Modernizing federal spending standards and guidance](#)

The Effects of Climate Change are Already Being Felt Across the Country

The evidence is all around us: communities across the United States are increasingly confronting devastation from frequent wildfires, storms, extreme heat, drought, and flooding. More than 40% of Americans live in counties where natural disasters occurred in 2021.¹ Residents, businesses, and local governments across the country face overwhelming costs from natural disasters that impact their livelihoods, property, food and energy security, and health. In 2021 alone, at least 688 Americans died from climate-related disasters and more than \$145 billion in damages were accrued.²

These impacts fall disproportionately on communities that are the most vulnerable and have the fewest resources with which to respond. A recent US Environmental Protection Agency (EPA) [report](#) found that socially vulnerable populations—defined by income, educational attainment, race and ethnicity, and age—tend to be more exposed to the greatest impacts of climate change. These populations are most likely to currently live in areas with the highest projected levels of mortality increases from extreme temperatures, inundation from sea level rise, and labor-hour losses from high-temperature days.

Scientific evidence warns, in no uncertain terms, that future costs will grow larger and more unequal. The 2022 [Intergovernmental Panel on Climate Change \(IPCC\) report](#) states with high confidence that “key [climate] risks to North America are expected to intensify rapidly by mid-century” and that “[i]mmediate, widespread, and coordinated implementation of adaptation measures aimed at reducing risks and focused on equity have the greatest potential to maintain and improve the quality of life for North Americans.” And yet, the [IPCC report](#) notes, current efforts represent incremental as opposed to transformational adaptation.

This policy brief updates recommendations to help the United States build resilience against flooding, wildfires, drought, extreme heat, storms, and sea level rise, and to do so in a fair and inclusive way. We take stock of progress since the first Resilience Roadmap recommendations were issued in 2021 and outline the most pressing and promising targets to accelerate federal action.

Support for Building Climate Resilience is Widely Held

The role the federal government plays building climate resilience within communities across the nation may not be as obvious as, for example, its role in reducing national greenhouse gas emissions. This is partly because climate impacts are addressed predominantly at the local level. It is the local governments, community groups, and private enterprises that typically design bridges, maintain water reservoirs, and house families displaced by extreme weather events. But the influence of the federal government should not be underestimated. Whether and how resilience is addressed can be affected by laws passed by the US Congress, policies decreed by the White House, regulations and standards established by federal agencies, federal funding transferred to state governments, competitive federal grant programs available to local governments and community organizations, and federal technical assistance and information sharing. Moreover, it is the combined forces of these disparate federal entities that have the resources to build resilience at the scale needed to address the risks at the level the nation is currently facing.

In an increasingly divided political landscape, building resilience is one of few policy areas that has broad geographic and bipartisan support among voters and politicians. Polls of the American public reveal

¹ Sarah Kaplan and Andrew Ba Tran, “More than 40 Percent of Americans Live in Counties Hit by Climate Disasters in 2021,” Washington Post, January 5, 2022, <https://www.washingtonpost.com/climate-environment/2022/01/05/climate-disasters-2021-fires>.

² Adam B. Smith, “2021 US Billion-Dollar Weather and Climate Disasters in Historical Context,” Climate.gov, January 24, 2022, <https://www.climate.gov/news-features/blogs/beyond-data/2021-us-billion-dollar-weather-and-climate-disasters-historical>.

that communities across the United States are already acknowledging the effects of climate change. They also indicate both majority and bipartisan support for government interventions to address climate change, such as investing in flood-resilient infrastructure.^{3,4} For example, in 2021, 85% of Americans surveyed agreed the federal government should “set stricter building standards to better withstand major storms, floods, and wildfires.”⁵

The growing concern among US citizens is translating into action by federal policy makers across the political spectrum. Interest in bipartisan legislative action to address key vulnerabilities and resilience-building needs continues to grow. The most comprehensive bill introduced during the 117th Congress is the [National Climate Adaptation and Resilience Strategy Act \(NCARS\)](#), which has Democratic and Republican sponsors/cosponsors in the Senate and House. Other bills such as the [Flood Resiliency and Taxpayer Savings Act of 2021](#), [Disaster Savings and Resilient Construction Act of 2021](#), [Community Disaster and Resilience Zones Act of 2022](#), and [Preventing Outages with Enhanced Resilience and Operations Nationwide Act of 2021](#) all address different aspects of resilience. In total, Congress has introduced 21 bipartisan bills that address aspects of climate resilience during the current session⁶ (see Appendix D). These bills, if passed, could mandate flood risk assessments for all federally funded projects, incentivize resilient construction projects in disaster areas and electricity grids, enhance publicly available information of natural hazard risks across the country, and provide funding to enhance resiliency in areas particularly vulnerable to natural hazards such as forests and coastlines.

The US House has gone even further. In June 2020, the House Select Committee on the Climate Crisis produced an exhaustive [action plan](#) that charts how Congress could prepare the nation to address the

Definitions

Resilience: “A capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.” [US Global Change Research Program](#). Accessed July 2022.

Adaptation: “Adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects.” [US Global Change Research Program](#). Accessed July 2022.

Environmental justice: “...the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies to ensure that each person enjoys (A) the same degree of protection from environmental and health hazards; and (B) equal access to any Federal agency action on environmental justice issues in order to have a healthy environment in which to live, learn, work, and recreate.” [H.R. 5986, Environmental Justice for All Act, Section 3](#).

³ Cary Funk and Meg Hefferon, “US Public Views on Climate and Energy,” Pew Research Center, November 25, 2019, <https://www.pewresearch.org/science/2019/11/25/u-s-public-views-on-climate-and-energy>.

⁴ Forbes Tomkins, “Overwhelming Majority of Americans Support Spending More for Flood-Ready Infrastructure,” Pew Charitable Trusts, February 24, 2020, <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/02/24/overwhelming-majority-of-americans-support-spending-more-for-flood-ready-infrastructure>.

⁵ Cary Funk and Alec Tyson, “67% of Americans Perceive a Rise in Extreme Weather, but Partisans Differ over Government Efforts to Address it,” Pew Research Center, October 14, 2021, <https://www.pewresearch.org/fact-tank/2021/10/14/67-of-americans-perceive-a-rise-in-extreme-weather-but-partisans-differ-over-government-efforts-to-address-it>.

⁶ Note that states have also acted in a bipartisan manner to build resilience. For example, state legislation has created Chief Resilience Officer positions in Colorado, North Carolina, South Carolina, West Virginia, and Oregon; see: Stephen Jordan and Patty Pellington, “The Rise of the Chief Resilience Officer,” Institute for Sustainable Development, February 4, 2022, <https://www.isdus.org/post/the-rise-of-the-chief-resilience-officer>.

challenge of the climate crisis while valuing workers, centering environmental justice, and building a clean energy economy. Almost half of the Committee’s recommendations addressed some aspect of resiliency-building.⁷

Important Efforts are Being Taken to Build Resilience, but Not Enough

Under President Joe Biden, the federal government has made climate resilience a priority. Executive agencies have already dedicated more executive action, capacity, information resources, and funding to addressing climate risks than any previous administration. Through Executive Orders (see Appendix B) and executive branch budget requests (see Appendix C), the administration has broadly articulated a vision of incorporating climate resilience into all federal programs and spending. The new sustainability office at the White House Council on Environmental Quality (CEQ) led the development of [federal climate adaptation plans](#) across 23 federal agencies to build resilience of federal assets such as buildings, roads, and natural resources.

And yet, despite the historic nature of these resilience-building efforts, they are not enough. As will be discussed in following sections and in Appendix A, the federal actions to date still tend to be incremental and uncoordinated. As a result, they are not able to sufficiently address intensifying climate-related risks.

Both the progress and limitations of the federal government’s attention to resilience is exemplified by the bipartisan [Infrastructure Investment and Jobs Act](#) (IIJA), passed by Congress in November 2021. Within IIJA, [\\$50 billion](#) has been designated to build the resilience of physical and natural systems against droughts, heat, floods and wildfires. This represents the largest resilience investment in the nation’s history. Yet the remainder of IIJA projects and programs—comprising more than \$1 trillion—do not require resilience considerations in their [implementation](#), nor do they provide sufficient resources for resilience planning or design. Building infrastructure ill-designed to withstand the future is neither smart nor fair to the communities it is meant to serve.

Progress of Resilience Roadmap Recommendations

In April 2021, at the outset of the new administration and legislative session, the [Resilience Roadmap](#) project proposed a series of [recommendations](#) on what key principles and actions the federal government should adopt to advance nationwide efforts to build climate resilience. The recommendations were premised on three underlying principles: that resilience-building must (1) be integrated and coordinated throughout all levels of government; (2) deliver tangible, on-the-ground benefits; and (3) benefit communities equitably and justly. Building on these principles, the recommendations can be categorized in four key areas. Here we summarize the recommendations and assess their progress since early 2021. Appendix A provides a more detailed stock-taking of each area.

1 [Taking a Whole-of-Government Approach:](#) To address the fragmented approach to addressing climate-related risks that has hampered the overall effectiveness of agency efforts in the past, the Resilience Roadmap recommended that the Biden administration adopt a holistic and integrative approach to climate resilience. The “whole-of-government” approach calls for the designation of a high-level resilience lead, development of a national resilience strategy, coordination of resilience and equity efforts across

⁷ A review by the Resilience Roadmap project found that, of the 727 recommendations set forth in the action plan of the House Select Committee on the Climate Crisis, [Solving the Climate Crisis: The Congressional Action Plan for a Clean Energy Economy and a Healthy, Resilient, and Just America](#), 352 included some aspect of resiliency building (as compared to greenhouse gas mitigation). The topics that had the greatest number of resilience-related recommendations were: Protect and Restore America’s Lands, Waters, Ocean, and Wildlife (80 recommendations); Make US Communities More Resilient to the Impacts of Climate Change (76 recommendations); Invest in Infrastructure to Build a Just, Equitable, and Resilient Clean Energy Economy (56 recommendations); Improve Public Health and Manage Climate Risks to Health (37 recommendations); and Invest in American Agriculture for Climate Solutions (37 recommendations). Of the resilience-related recommendations, approximately 160 required primary action by the legislative branch (e.g. appropriation, enabling legislation, etc.), 152 by the executive branch (e.g. agency planning, reviewing, demonstration programs, interagency cooperation, etc.), and 40 by both branches.

all agencies, and the full engagement of state, tribal, and local governments and community organizations as partners.

Progress to date: The Biden administration has broadly articulated a whole-of-government vision of incorporating climate resilience in all federal programs and spending through its Executive Orders (see Appendix B).

The Biden administration has not yet developed a national climate resilience plan, nor has it designated a single high-level lead to coordinate federal resilience efforts. These remain urgent needs.

Instead, the administration has largely promoted the implementation of its whole-of-government approach through Interagency Working Groups (IWGs) on resilience hazards ([drought](#), [coastal resilience](#), [flooding](#), [wildfire](#), [extreme heat](#)). IWGs bring together federal agencies who have a shared responsibility to enhance resiliency, incorporate environmental justice into decision-making, and protect communities from hazards. Some IWG progress has recently become publicly available, including coordinated relief efforts for communities affected by drought, intensive stakeholder engagement to learn directly from vulnerable communities impacted by hazards, cross-agency coordination to improve warning systems and communication about hazards, and recommendations for reducing barriers to accessing federal programming for marginalized communities. It appears that many of the new resilience-building programs developed during the Biden administration have been incubated, at least partially, in the IWGs. (See Appendix A for more details on reported progress from IWGs.)

Other efforts are also under way to promote resilience-building across government agencies, but most of these tend to be independent of each other. For example, 23 federal agencies were all mandated to develop their climate adaptation plans, but each carried out the exercise independently. Consequently, none of the activities can be coordinated across agencies—even when they have overlapping jurisdiction—and their performance and progress cannot be compared. However, CEQ is currently developing plans to better coordinate the second round of agency adaptation plans—planned for 2023—to improve coherence⁸ and effectiveness.

2 Recognizing Financial Risks: Because the federal government previously did not adequately account for climate-related risks, its spending, programs, investments, and policies have historically often resulted in infrastructure, services, natural resources, and communities ill-designed to withstand extreme weather events and stressors. To address this vulnerability and further incentivize efforts to build resilience, the Resilience Roadmap recommended that the federal government incorporate the full costs of climate-related risks into its financial regulations and fiscal policies.

Progress to date: Both the Biden administration, through the executive agencies, and independent federal regulators in several critical domains have taken key actions over the past year to advance financial and fiscal policy and regulatory changes that would help government agencies, businesses, and households better account for climate-related risks.

In response to [Executive Order 14030, Climate-Related Financial Risk](#), the White House released [A Roadmap to Build a Climate-Resilient Economy](#) and the White House Office of Management and Budget (OMB) published first-of-its-kind assessments and white papers on the federal government's [financial risks from climate change](#). Elements of these guidelines are beginning to be picked up by executive agencies.

⁸ For instance, the Resilience Roadmap and partners have produced guidance on developing key performance indicators (KPIs) for climate adaptation and resilience planning, applicable to all agencies. KPI document forthcoming in August 2022.

Meanwhile, federal independent regulatory agencies have been similarly active. The US Securities and Exchange Commission (SEC) proposed [climate-related disclosure rules](#), the Federal Deposit Insurance Corporation (FDIC) proposed draft climate-related risk management principles for large financial institutions, and the Federal Reserve Board, Office of the Comptroller of the Currency, and FDIC proposed updating the [Community Reinvestment Act](#) to allow investments to address climate resiliency.

These reforms represent just a first step. Building on the principles and roadmap laid out by the White House, comprehensive implementation of improved financial accounting and proposed regulatory reforms need to be taken up and implemented across the federal government as well as among state, local, and tribal governments; private enterprises; and the public at large.

3 Empowering State, Local, and Tribal Actors and Disadvantaged Communities: While building resilience is a national imperative, the capacity for effective action and ongoing learning cannot be built only at the federal level. The Resilience Roadmap recommended that the federal government ensure that state, local, and tribal agencies and community organizations working directly with affected communities—especially vulnerable populations—have the capacity and resources to build climate resilience.

Progress to date: The Biden administration has prioritized working with and providing resources to state, local, and tribal governments and community organizations while centering equity and environmental justice in their delivery. For example, the White House’s [Justice40 Initiative](#) calls for 40% of federal investments in climate and clean energy to go to disadvantaged communities. CEQ released a pilot [Climate and Economic Justice Screening Tool](#) (CEJST) to help to identify disadvantaged communities to ensure they receive the benefits from federal programs. Progress has been made in making Justice40 a reality and establishing a framework for implementation, but the administration needs to continue to add clarity and enforcement to Justice40 implementation. For example, agencies still need to define how the CEJST will be used to target federal dollars.

Federal-to-local implementation of the IIA has served as a model for getting [manuals](#), [training webinars](#), and [clearinghouse resources](#) to end users in community organizations and local governments. The rollout has been coordinated by a single high-level [advisor and staff](#) and has paid particular attention to [serving vulnerable and disadvantaged communities](#). Yet despite this concerted effort, further work is needed to address ensure that IIA spending fully addresses a community’s climate-related risks and concerns. For example, key potential partners in community organizations—critical groups for the successful implementation of many of the IIA programs—are not eligible for the great majority of IIA funding programs.

By comparison, implementation of other resilience-related activities across most agencies has been less systematic, and thus funding and efforts have not effectively reached their target recipients. For example, the [Building Resilient Infrastructure and Communities](#) (BRIC) assistance program under the Federal Emergency Management Agency (FEMA) aims to support states, local communities, tribes, and territories to reduce the risks they face from disasters and natural hazards. Yet the inability of smaller, disadvantaged communities to apply and implement BRIC projects and to meet cost share requirements is a major obstacle to getting funding and capacity to those who need it most.

4 Building Knowledge and Capacity: The federal government has an unmatched ability to gather and analyze the climate data needed to help with climate-related risk decision-making across all sectors of society. The Resilience Roadmap recommended that the federal government intensify the collection of scientific data and the creation of tools required for climate-related risk decision-making and make sure they are easily available to end users.

Progress to date: The Biden administration oversaw the release of significant new and updated climate risk data such as the new FEMA [flood maps](#) and new [sea level rise projections](#) from the National Oceanic and Atmospheric Administration (NOAA). NOAA, in partnership with the Climate Resilience Fund, has been expanding its [US Climate Resilience Toolkit](#), a web-based central climate resilience information hub that serves as a clearinghouse for information from across the federal government. It directs users to other recent online tools and data, such as NOAA's [Sea Level Rise Portal](#), among others.

Federal agencies have also updated many existing policies to reflect current climate science, such as policies for implementing the [National Environmental Policy Act](#) and reinstating the [Federal Flood Risk Management Standard](#).

A critical next step is disseminating these products and building the capacity among users who could benefit from them, especially those that historically disadvantaged and underserved. The [Federal Geographic Data Committee Roadmap](#) suggests how coordination could help ensure that new geospatial datasets and tools get to those who need the information most.

Although the current administration's climate resilience efforts surpass that of any of its predecessors, the scale of risk and pace of intensifying change are outstripping incremental federal action. There is still much to be done. Many of the original [Resilience Roadmap](#) recommendations remain relevant to improving the federal government's ability to build climate resilience. To better harness and magnify the work already underway by the administration, we propose three catalytic actions.

Additional Catalyzing Actions Can Help Meet the Challenge Ahead

1 **Communicate risk-based investment decision-making** by helping policy makers, the private sector, and communities better understand and evaluate climate-related risks, uncertainties, and resilience options and trade-offs, including realistic payoffs from alternative investments. **Why?** The federal government has proposed modernizing financial guidelines and regulations to incorporate climate risk, but these reforms have not yet reached most policy makers, investors, and community leaders making key decisions that shape today's and tomorrow's buildings, infrastructure, businesses, and communities.

The White House has released a framework, strategies, milestones, and assessment tools for incorporating climate-related financial risks in federal government spending and programs. Meanwhile, the nation's key independent regulatory agencies—including the SEC, FDIC, and Federal Reserve, among others—have made important progress identifying the nation's climate-related financial risks and proposing reforms to address them (see Appendix A). Yet these proposed financial reforms are not being clearly conveyed to all levels of federal, state, local, and tribal government agencies; private enterprises; community organizations; and the public at large. Consequently, public and private investment continues to be made in structures and activities that are ill-prepared for threats they are likely to face from flooding, sea level rise, wildfire, extreme heat, and drought.

An important next step to accelerating needed financial reforms is for the administration to **simplify and amplify the communication of the benefits of climate-related financial reforms and the costs of inaction**. Specific catalytic actions are:

- Develop a consistent message and communication resources on the immediate-to-long-term benefits of addressing climate-related risks, building on the recent series of [reports](#) by the OMB quantifying climate-related risks to the federal budget. Translate this message so that it is relevant to the mission and activities of all applicable federal agencies as well as other key constituencies.

- Enhance training of and resources available to federal agency staff so that they communicate climate-related risks to all key constituencies.
- Enhance outreach and educational efforts with key constituencies: (1) state and local governments; (2) the private sector, especially industry trade associations; and (3) community organizations, especially those working in vulnerable and disadvantaged communities. These trainings and resources should be customized for recipient audiences and not insist on a single national lexicon.

2 Bolster federal-to-local capacity and coordination to ensure that federal programs and funds reach targeted audiences in state, tribal, and local governments and meet the resilience needs of those who are vulnerable and marginalized. *Why?* The US multilevel system of governance distributes resources as well as authority and accountability. Breakdown in this delivery chain is all too common. Federal policy makers and implementers need to ensure that federal programs across multiple agencies are being appropriately leveraged and woven together, especially for those who need it most.

Those working on the ground are still unaware of or find it difficult to access climate resilience funding and programs across federal government agencies.⁹ Moreover, funding and programs have been slow to adapt their operations to effectively engage and benefit vulnerable and marginalized groups.¹⁰ The example set by the IJJA senior advisor model illustrates that a centralized, high-level office can coordinate and convey the patchwork of resources and make them more comprehensible to end users. The Biden administration should use the IJJA example to expand its effort to **coordinate and better communicate its resilience resources to support state, tribal, and local governments and community organizations, especially for vulnerable and disadvantaged communities.** Specific catalytic actions are:

- Create a manual, modeled on the [IJJA Guidebook](#), that synthesizes all federal funding opportunities available to all levels of government and community organizations for building climate resilience. Ideally an online manual or filterable database would allow for “one-stop shopping” for partner agencies and organizations.
- Build on the [IJJA Technical Assistance Guide](#) to create and maintain/update an online clearinghouse of resources (both federal and nonfederal) to help identify and access federal resources (e.g. pro bono grant-writing assistance programs, hands-on planning programs, webinars on grant implementation, etc.). The clearinghouse could include a helpline to support questions and needs of partner agencies and organizations. The clearinghouse will be most successful if codesigned and coled with on-the-ground partners.
- Invest in and expand federally led or sponsored capacity development and technical assistance programs for states and local government agencies to assist in collaborative resilience planning and competing for federal funding. A range of model programs exist, such as the Housing and Urban Development (HUD) [Rebuild by Design](#) program, based on the [National Disaster Resilience Competition](#) implemented after Hurricane Sandy, and EPA’s [Community Action for a Renewed Environment](#), a communities grant program that supports innovative means of reducing pollution risks.
- Invest in and expand federally led or sponsored capacity development and technical assistance programs for community organizations, especially those working in vulnerable and disadvantaged

⁹ AAAS EPI Center, Exploring Barriers to Accessing Evidence and Federal Resources for Equitable Green Infrastructure Implementation with States and Municipalities, American Association for the Advancement of Science’s Center for Scientific Evidence in Public Issues, Environmental Council of the States, and the US Environmental Protection Agency Office of Water, March 2022, https://www.aaas.org/sites/default/files/2022-05/EPI-Center_FactSheet_MAR-2022_Summary_Final.pdf.

¹⁰ EESI, “Protecting Vulnerable Communities from Climate Impacts,” Briefing presentation, Environmental and Energy Study Institute, National Housing Trust, and Natural Resources Defense Council, April 16, 2021, <https://www.eesi.org/briefings/view/041621eefa>.

communities, to assist them in accessing and implementing federal funding that addresses climate resilience. Models for this type of programming include the US Army Corps of Engineers ([USACE Silver Jackets](#)) and [NOAA Sea Grant](#).

- Use federal convening power bolstered by current grant opportunities and technical assistance to build cohorts of community leaders and organizations facing similar suffering and risks from severe weather. Cohorts can be centered on building capacity, sharing experiences, accessing resources, and generating broad-based support for further local-to-national climate action.

3 Modernize federal spending standards and guidance to ensure federal dollars build resilience with equity, especially in vulnerable and marginalized communities. *Why?* Taxpayer dollars should be spent wisely on projects and activities that address current and future needs and conditions. Yet, to be able to direct funding effectively, decision makers require clear resilience and equity standards, performance measures, and guidance in how to account for climate risks and apply them to spending decisions.

The previous two catalytic actions focus on improving the effectiveness of current administration efforts—accelerating the adoption of climate-related risk assessment reforms that are already under way and ensuring that federal programs and spending are being used by their intended users. The third action attempts to level the playing field so that all federal spending and programs take a consistent approach to building climate resilience.

Consider the case of IJIA implementation. While the administration highlights that the Act allocates some [\\$50 billion](#) for “resilience” projects,¹¹ every penny of IJIA’s estimated \$1.2 trillion should be spent in ways that will build US infrastructure resilience to climate change and other key risks. Yet the federal government has not yet issued guidance that would ensure that IJIA-funded highways, dams, bridges, transit systems, airports, and wastewater infrastructure projects be designed and built to withstand future climate-related risks.¹² If no further action is taken, over the next 5 to 10 years IJIA will likely fund massive infrastructure projects across the country that are not designed to withstand future climate-related risks—with potentially ruinous results.

Climate resilience standards—in the form of construction standards, design approaches and decision tools, climate-related risk assessments, screening tools, resilience and equity criteria, and performance indicators—are critical to ensuring that federal spending is invested wisely. The federal government, in setting these standards, may learn from standards currently used by some advanced state, local, and tribal actors. Specific catalytic actions are:

- Create and apply an infrastructure construction standard that requires federally financed infrastructure be designed and built to address climate-related risk across a project’s full expected lifespan. The new [federal building code initiative](#) provides a good starting point; this initiative should be expanded and coordinated with the release of IJIA funds and other federal infrastructure spending.
- Establish agency resilience infrastructure construction standards by key agencies (e.g. HUD, FEMA, Department of Transportation [DOT], Department of Defense [DOD], EPA) until a government-wide construction standard is released, drawing upon current science and methods to address climate change and uncertainties in design. Agencies should furthermore coordinate among each other to ensure that they are consistent, as many projects require regulatory oversight by more than one agency.

¹¹ The White House, “Fact Sheet: The Bipartisan Infrastructure Deal,” WhiteHouse.gov, November 06, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/06/fact-sheet-the-bipartisan-infrastructure-deal>.

¹² [IJIA implementation guidance](#) did not include any reference to resilience standards or screening.

- Create and apply federal resilience screening tools and hazard preassessment tools that help agencies understand the exposure of projects to climate-related hazards. These tools could be adapted from existing agency instruments, such as the [DOD Climate Assessment Tool](#). Screening and assessment could be required by competitive federal grants programs or strongly encouraged for formula programs to states.
- Require federal agencies to track their agency and program performance in addressing climate-related risks through key performance indicators.¹³ Each agency should chronicle its progress in agency adaptation plan reporting. Where possible, indicators should be standardized and coordinated across agencies.
- Offer recurring climate resilience trainings to federal agency staff to prepare them to systematically implement agency missions with climate threats in mind. Training should include understanding, addressing, and measuring progress on climate resilience. The effort should be carried out across the federal government.

The Bottom Line

The United States is already facing enormous costs from natural disasters, weather extremes, and other effects of climate change; impacts and costs will continue to rise. The need for fast and comprehensive action to build US national climate resilience is evident. The Biden administration has made ambitious resilience commitments and important progress in structuring the programs and spending. To meet the enormity of the growing challenges posed by flooding, wildfires, storms, extreme heat, and numerous other climate-related hazard, however, more progress is urgently needed. The lack of a single, high-level resilience lead and a national strategy is a critical shortcoming. Federal action must move forward in a consistent, concerted manner using current data, tools and standards to ensure that this generational opportunity to strengthen the nation builds deep and lasting resilience for all. The administration should double down on areas of important progress, pursuing a whole-of-government approach; engaging tribal, state and local actors; and building knowledge products and networks. In addition to the important incremental gains that may be made across existing programs and policies, we suggest that three catalytic actions may enhance and accelerate national resilience building efforts: (1) communicating risk-based investment decision-making, (2) bolstering federal-to-local capacity and coordination, and (3) modernizing federal spending standards and guidance. Given bipartisan interest in resilience and a nation increasingly aware of the growing threat climate change poses to our nation, the moment is now.

¹³ KPI document forthcoming in August 2022.

Acronyms

BRIC	Building Resilient Infrastructure and Communities
CBA	Cost-benefit analysis
CCCI	Civilian Climate Corps Initiative
CEJST	Climate and Economic Justice Screening Tool
CEQ	White House Council on Environmental Quality
DHS	US Department of Homeland Security
DOD	US Department of Defense
DOI	US Department of the Interior
DOJ	US Department of Justice
DOT	US Department of Transportation
EPA	US Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FDIC	Federal Deposit Insurance Corporation
FFRMS	Federal Flood Risk Management Standard
FSOC	Financial Stability Oversight Council
FY	Fiscal year
HUD	US Department of Housing and Urban Development
IJJA	Infrastructure Investment and Jobs Act
IPCC	Intergovernmental Panel on Climate Change
IWG(s)	Interagency Working Group(s)
KPI(s)	Key performance indicator(s)
NCARS	National Climate Adaptation and Resilience Strategy Act
NOAA	National Oceanic and Atmospheric Administration
OCCHE	Office of Climate Change and Health Equity
POWER ON	Preventing Outages with Enhanced Resilience and Operations Nationwide Act of 2021
OMB	White House Office of Management and Budget
SEC	US Securities and Exchange Commission
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
VA	US Department of Veterans Affairs
WHEJAC	White House Environmental Justice Advisory Council

APPENDIX A. PROGRESS ON RESILIENCE ROADMAP RECOMMENDATIONS

The previous [Resilience Roadmap](#) report, released in April 2021, proposed 10 resilience-related recommendations for federal action organized into four thematic areas:

- (1) Taking a whole-of-government approach (original recommendations 1, 2, and 3)
- (2) Recognizing financial risks (original recommendations 5 and 9)
- (3) Empowering state, tribal, and local actors and disadvantaged communities (original recommendations 4, 6, 7, and 8)
- (4) Building knowledge and capacity (original recommendation 10)

This appendix provides a sample of executive federal actions that have taken place during the Biden administration in each of the four areas and highlights shortcomings for each.

Details on Progress in Each of the Four Thematic Areas

1 ***Taking a whole-of-government approach***—This area entails developing policies and administrative structures that coordinate the work of individual agency activities so that they work cooperatively, build upon each other’s efforts and reduce the fragmented landscape. To date, the two key recommendations for achieving this from the Resilience Roadmap—appointing a high-level federal resilience lead and developing a national resilience strategy—have not been enacted by this administration.

Thus far, the primary means of promoting a holistic method has been through the creation of five IWGs on key resilience hazards ([drought](#), [coastal resilience](#), [flooding](#), [wildfire](#), [extreme heat](#)), which have had some successes to date, as described in following sections, and represent the initial building blocks for a whole-of-government approach. Beyond the IWG actions, individual agencies continue to develop a wide array of resilience efforts, though most are still disconnected from actions in other agencies.

Some noteworthy initiatives progressing in the direction of a whole-of-government approach include the following:

- Resilience is regularly highlighted as a government priority in key administration documents (e.g. Executive Order 14008, [Tackling the Climate Crisis at Home and Abroad](#) and a White House mandate that [all IIJA infrastructure investments should build resilience](#) to withstand the impacts of climate change [though as noted elsewhere in this briefing, OMB [implementation guidelines](#) for IIJA have no specifications for resilience]).
- Though no chief resilience officer or other high-level White House position has yet been established, several resilience-related positions have been established within CEQ (e.g. Senior Advisor on Climate Adaptation, Director of Climate Adaptation and Resilience, Director of Nature-based Resilience).
- The National Climate Task Force–established IWGs are beginning to report on their progress since being developed in the first two years of this administration. Some of these accomplishments, exemplifying a whole-of-government approach, include:
 - [The Drought Resilience Interagency Working Group](#). Accomplishments include investing \$38 million in drought relief efforts in the Klamath Basin, which provide financial support to agricultural producers and supports the Klamath River Coho Restoration Grant program; developing a basin-wide solution to preserve salmon populations in the Columbia River Basin in Idaho, Montana, Oregon, and Washington; financially supporting water-related data

collection, monitoring, and reporting in the Rio Grande Basin; adding a drought indicator to the Centers for Disease Control and Prevention's National Environmental Public Health Tracking Network; providing \$10 billion in emergency relief for agricultural producers impacted by natural hazards, and more.

- **[Mitigation Framework Leadership Group](#)**. Accomplishments include supporting Utah and community partners to address earthquake risk along the Wasatch Front by publishing the Unreinforced Masonry Risk Reduction Strategy; cocreating the Mitigation Investment Data Lab, a Census Research Data center project to promote natural disaster research; and consolidating funding resources and mitigation project success stories to increase community resilience.
- **[Coastal Resilience IWG](#)**. Accomplishments include the publication of the sea level rise technical report with the most up-to-date sea level rise projection to 2150, the publication of an application guide to assist coastal practitioners to apply information from the sea level rise technical report, and the publication of a compendium of federal nature-based resources with guidance on coastal green infrastructure.
- **[White House Environmental Justice Interagency Council](#)**. Accomplishments include the development of implementation guidance for the Justice40 Initiative, the publication of the CEJST, and working with the White House Environmental Justice Advisory Council (WHEJAC) to develop the Environmental Justice Scorecard and the federal government to better incorporate environmental justice into decision making.
- New offices have been created to address cross-cutting resilience issues. For example, the [Office of Climate Change and Health Equity](#) was created within the Department of Health and Human Services in August 2021.
- Also in 2021, 23 federal agencies drafted [federal climate adaptation plans](#). These agency plans will be revised in 2023. CEQ officials are currently working on guidance to increase standardization and coordination for the updated plans. Agency resilience leads have convened a network to share ideas on adaptation planning.

2 Recognizing financial risks—Building resilience—whether as a homeowner, investor, or policy maker—requires an understanding of the real costs of action and inaction in terms of climate risk. In October 2021, the White House mapped out the framework, strategy, and milestones needed to safeguard the US economy from climate-related financial risks in its report, *A Roadmap to Build a Climate-Resilient Economy*. Meanwhile, both the administration and independent financial regulators have made or proposed a suite of regulatory and financial changes that would modernize the nation's ability to assess climate risks.¹⁴

- Significant advances in the last year include the following proposals and actions of the Biden administration:
 - In April 2022, OMB released a report on [climate-related financial risks](#) to the federal budget. The report included new assessments, the [Federal Budget Exposure to Climate Risks](#), and a new section in the [Long-Term Budget Outlook](#) focused on climate change. OMB and the Council of Economic Advisers also [released a white paper](#) outlining how better modeling of the broader economic impacts of climate change can help quantify economic and fiscal impacts of climate change and climate action.

¹⁴ See also: Ceres, "US Regulators Step up to Face Climate-Related Financial Risks," Roll Call, June 30, 2022, <https://rollcall.com/2022/06/30/u-s-regulators-step-up-to-face-climate-related-financial-risks>.

- As a part of ongoing conversations between the White House and federal agencies about how to reform cost-benefit analysis (CBA) so that it will better account for nonfinancial criteria, such as ecological benefits, social equity, and resilience potential, a few agencies have begun to explore new CBA approaches. For example, the USACE is testing [new CBA methods](#) that would more [fully account for nature-based project benefits](#) to the economy, the environment, and communities.
- HUD, the Department of Veterans Affairs (VA), and the Department of Agriculture (USDA) recently issued climate action plans including financial programs to manage climate risks. [HUD, USDA, and the VA](#) are all creating approaches to incorporate climate-related considerations into underwriting standards, loan terms and conditions, and asset management and servicing procedures.
- The Department of Labor has sought [public comments](#) on how federal regulations could better protect retirement savings and pensions from climate risks.
- In May 2021, the [Federal Flood Risk Management Standard](#) (FFRMS) was reinstated through Executive Order 14030, [Climate-Related Financial Risk](#). The purpose of the FFRMS is to encourage federal agencies to consider and manage current and future flood risks.
- The [Federal Insurance Office in the Department of Treasury is beginning to work with insurance regulators](#) across all 50 states to better understand both the prevalence of insurers declining to cover homes and businesses in areas vulnerable to climate change as well as the risk that insurers face from paying increased claims in disaster-prone areas.
- Other significant advances include the following actions of independent financial regulatory agencies:
 - In March 2022, the SEC proposed rule changes in the [Enhancement and Standardization of Climate-Related Disclosure](#) to ensure that investors receive consistent, comparable, and reliable information about climate risks and greenhouse gas emissions.
 - In April 2022, the FDIC proposed draft [climate-related risk management principles](#) for large financial institutions.
 - In June 2022, the Federal Reserve Board, Office of the Comptroller of the Currency (an independent bureau within the Department of Treasury), and FDIC proposed [updated rules for the Community Reinvestment Act](#) such that climate resiliency and disaster preparedness would be considered within the definition of community development activities.

While these reforms are critical and, in some cases, pathbreaking, there can be a lengthy delay between the introduction of a roadmap and reforms to their incorporation into decision making. The urgently needed next step is broad dissemination of these principles, guidelines, and new regulations to expedite their uptake by all levels of government, the private sector, and households.

3 Empowering state, tribal, and local actors and disadvantaged communities—Building climate resilience takes place primarily at the local level. This is where the costs of action and inaction are felt and where motivation to address climate risks typically resides. But frontline actors—whether local, state, or tribal government agencies or community organizations—often need support from the federal government. Nowhere is this more evident than in disadvantaged communities and tribes that are vulnerable to climate risks, have little capacity to address them, and have historically been insufficiently supported by all levels of government. The federal government can play many supportive roles by providing resources such as funding, information, and technical assistance. In doing so, the federal government can also work to ensure that these resources are distributed equitably and justly.

- The Biden administration has stated its priority of working with and providing resources to state, local, tribal, and territorial governments and community organizations, with a special emphasis on supporting disadvantaged communities. Under this administration, many agencies employed climate resilience activities that partner with and empower local, state, or tribal government agencies and community organizations. They have also focused extensively on directing these resources equitably and justly. However, these agency actions still tend to be piecemeal and not systematically are not adequately reaching the communities and actors who most need it.
- Some of the most significant advances in the last year in the Biden Administration's effort to support and empower all levels of government and community organizations can be found in the implementation of IJA and Justice40, such as the following:
 - The [Justice40 Initiative](#) was established under Executive Order 14008 to ensure that 40% of the overall benefits of federal investments in climate and clean energy are delivered to disadvantaged communities. In May 2022, the administration held a [Justice40 Week of Action](#), which included the rollout of a new environmental justice website, a report on progress toward key recommendations from WHEJAC, and an announcement of a series of outreach and listening sessions to share updates on Justice40 with communities and to hear community input.
 - Executive Order 14008 also established [WHEJAC](#), which has a [Climate Resilience Workgroup](#) established in January 2022 to provide advice and recommendations on a whole-of-government approach to environmental justice that includes climate change mitigation, resilience, and disaster management.
 - The Biden administration created a high-level position in the CEQ, Senior Director for Environmental Justice, whose role is to help advance and coordinate the administration's commitment to leverage the federal government in advancing environmental justice.
 - Progress has been made in making Justice40 a reality¹⁵ and establishing a [framework for implementation](#), but the administration needs to continue to be vigilant about enforcing and adding clarity to Justice40 implementation. Some agencies have begun to release documentation and details about Justice40 implementation, such as the [EPA's Justice40 Covered Programs](#) list, and this should be standard across all relevant agencies.
 - The best example of the Biden administration systemically empowering local partners while addressing equity has been in the implementation of the bipartisan infrastructure law; notably, the White House established a high-level [senior advisor](#) to coordinate IJA from the White House.
 - The White House has released multiple documents to assist governments and community organizations in accessing funds from IJA (including for resilience programs); for example, the [Bipartisan Infrastructure Law Guidebook](#), which provides a program-by-program description of IJA; the [Bipartisan Infrastructure Law Technical Assistance Guide](#), which identifies technical assistance resources and programs to help communities deliver infrastructure projects; and the [Bipartisan Infrastructure Law Tribal Playbook](#), which describes programs and sources of IJA funds specifically targeted for tribal communities.
 - The White House has participated in activities to promote federal-to-state coordination of IJA implementation; for example, in December 2021, a [State-to-Federal Coordination Roundtable](#) hosted state climate officials and representatives from the White House, the Department of

¹⁵ Pamela King and Kelsey Brugger, "Biden Admin Unveils Long-Awaited EJ Strategy," Greenwire, May 05, 2022, <https://www.eenews.net/articles/biden-admin-unveils-long-awaited-ej-strategy>.

Energy, DOT, and the EPA to discuss how specific IJIA programs could potentially increase climate resilience and reduce greenhouse gas emissions.

- The White House has participated in activities to promote federal-to-local coordination of IJIA implementation; for example, multiple events sponsored by the White House and federal agencies that convene local governments and community organizations to inform them about resilience resources available from federal government (e.g. the “[Infrastructure School](#)” webinar series, which provided a blueprint for local leaders on what funds were available from IJIA and how to access them).
- Many individual programs within agencies have also been established or updated to reflect the need to ensure federal spending addresses local needs and does so in an equitable manner. For example, the FEMA BRIC program provides predisaster planning and risk mitigation. Because of [equity concerns](#) around the ability of smaller, disadvantaged communities to apply and implement BRIC projects and meet their cost share requirements, the Biden administration has changed the applicant evaluation criteria to address these issues and has committed 40% of BRIC funding to be allocated to disadvantaged communities.
- Where progress has been made, it is mostly from the federal government focusing on what it can do to support other levels of government and communities rather than engaging in two-way discussions with these partners as to what they need to equitably address climate risks. However, there may be movement in this area associated with the upcoming [public listening sessions and training webinars](#) on the Climate and Economic Justice Screening Tool and Justice40.

4 Building knowledge and capacity—The federal government has an unmatched ability to gather and analyze climate data needed to help with decision-making across society. However, to be successful, it also must be able to share these data with those who need it, especially decision makers within disadvantaged communities. Since early 2021, significant advances were made in the planning and release of new and updated climate risk data, as well as tools to use them. A significant remaining need is to disseminate this information and build capacity among those who would benefit from using it. The federal government’s [roadmap](#) for using climate data and tools, described in following sections, lays out a blueprint for achieving this.

Some of the most significant releases include the following:

- Executive Order 14008, [Tackling the Climate Crisis at Home and Abroad](#), called for documents “to assist agencies and State, local, Tribal, and territorial governments, communities, and businesses in preparing for and adapting to the impacts of climate change” by reporting on “ways to expand and improve climate forecast capabilities and information products for the public” and “report on the potential development of a consolidated federal geographic mapping services that can facilitate public access to climate-related information that will assist ... governments in climate planning and resilience activities.”
- In October 2021, in response to Executive Order 14008, the Office of Science and Technology Policy, NOAA, and FEMA published [Opportunities for Expanding and Improving Climate Information and Services to the Public](#). The report provides recommendations for how the federal government can make rapid progress on expanding and improving climate services.
- In October 2021, as a companion to that report, the Federal Geographic Data Committee published a roadmap to outline how the federal government could facilitate and leverage increased public access to climate-related geospatial information and services from federal agencies. The roadmap,

[Advancing the Nation's Geospatial Capabilities to Promote Federal, State, Local, and Tribal Climate Planning and Resilience](#), though still in the planning stage, provides a useful blueprint for moving forward.

- New [FEMA flood maps](#) were produced that use up-to-date science to help communities understand which areas have the highest risks of flooding.
- NOAA developed [new sea level rise projections](#) that decision makers can use to plan for coastal development in their communities accordingly. The report containing these projections, the [Sea Level Rise Technical Report](#), outlines four key takeaways that NOAA wants to communicate to those using these projections.
- The CEJST was developed under Justice40 to help agencies and programs identify disadvantaged communities that are marginalized, underserved, and overburdened by pollution so they can direct resilience efforts to where they are needed most.
- Multiple new and/or updated NOAA resilience tools have been created (e.g. the Adapting Stormwater Management for Coastal Floods Tool, Coastal Community Snapshots, and the Sea Level Rise Scenario Tool).
- NOAA, in partnership with the Climate Resilience Fund, is expanding its [US Climate Resilience Toolkit](#), a web-based central climate resilience information hub that serves as a clearinghouse for information from across the federal government. The toolkit is adding a [Steps to Resilience Framework](#) to help decision makers evaluate exposure, vulnerability, and risk to climate-related hazards; weigh options; and execute responses that reduce risks.

APPENDIX B: RESILIENCE-RELATED EXECUTIVE ORDERS

President Biden has communicated that climate resilience is a priority for this administration and has demonstrated his commitment through multiple executive orders mandating federal action on resilience. This appendix lists the specific resilience-related commitments from five executive orders and tracks progress toward each commitment as of June 2022, as can be determined through publicly available information. In this sample of information, 66% of the commitments have already been met in full, while for 17% of the commitments, the federal government failed to meet its deadlines.

The executive orders examined are:

- 14008: [Executive Order on Tackling the Climate Crisis at Home and Abroad](#)
- 14030: [Executive Order on Climate-Related Financial Risk](#)
- 14052: [Executive Order on Implementation of the Infrastructure and Investment Jobs Act](#)
- 14057: [Executive Order on Catalyzing Clean Energy Industries and Jobs through Federal Sustainability](#)
- 14072: [Executive Order on Strengthening the Nation’s Forests, Communities, and Local Economies](#)

Table B1. Summary of executive order commitments and status of commitments

	Number of Commitments	% of total	
Commitments fully met by or before deadline	8	28	Commitments completed: 66%
Commitments fully met, but after deadline	7	24	
Commitments fully met with unknown or annual deadline	4	14	
Commitments overdue or status unknown	5	17	Commitments not completed and overdue: 17%
Commitments with unknown deadline, but pending or status unknown	2	7	Commitments not completed but not overdue: 17%
Commitments with post-June 2022 deadline	3	10	

Table B2. Summary of executive order commitment deadlines

Number of Commitments with pre-June 2022 Deadline	Number of Commitments with post-June 2022 Deadline	Number of Commitments with Annual Submission Instead of Deadline	Number of Commitments with Unknown Deadline	Total Number of Commitments
19	2	2	6	29

Table B3. List of executive order commitment status

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (1/27/21)	The Director of National Intelligence shall prepare, within 120 days of the date of this order, a National Intelligence Estimate on the national and economic security impacts of climate change.	5/27/2021	Completed: Report released October 2021— National Intelligence Estimate on Climate Change
	The Secretary of Defense, in coordination with [other agencies] shall develop and submit to the President, within 120 days of the date of this order, an analysis of the security implications of climate change (Climate Risk Analysis) that can be incorporated into modeling, simulation, war-gaming, and other analyses.	5/27/2021	Completed: Report released October 2021— Department of Defense Climate Risk Analysis
	There is hereby established the White House Office of Domestic Climate Policy (Climate Policy Office) within the Executive Office of the President.	1/27/2021	Completed: Office of Domestic Climate Policy established on January 27, 2021
	There is hereby established a National Climate Task Force (Task Force). The Task Force shall be chaired by the National Climate Advisor.	1/27/2021	Completed: National Climate Task Force established on January 27, 2021
	Climate Action Plans and Data and Information Products to Improve Adaptation and Increase Resilience. (a) The head of each agency shall submit a draft action plan to the Task Force and the Federal Chief Sustainability Officer within 120 days of the date of this order that describes steps the agency can take with regard to its facilities and operations to bolster adaptation and increase resilience to the impacts of climate change.	5/27/2021	Completed: First round of published by August 2021
	After submitting an initial action plan, the head of each agency shall submit to the Task Force and Federal Chief Sustainability Officer progress reports annually on the status of implementation efforts. Agencies shall make progress reports public and post them on the agency website.	Annually	Pending: First annual progress report due Summer 2022

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (1/27/21)	To assist agencies and State, local, Tribal, and territorial governments, communities, and businesses in preparing for and adapting to the impacts of climate change, the Secretary of Commerce ... shall provide to the Task Force a report on ways to expand and improve climate forecast capabilities and information products for the public.	Unknown	Complete: Two reports published in October of 2021— 1. Opportunities for Expanding and Improving Climate Information and Services for the Public 2. Advancing the Nation’s Geospatial Capabilities to Promote Federal, State, Local, and Tribal Climate Planning and Resilience
	The Secretary of the Interior ... shall submit a strategy to the Task Force within 90 days of the date of this order for creating a Civilian Climate Corps Initiative (CCCI).	4/27/2021	Status Unknown: The CCCI strategy cannot be found publicly Note that efforts to fund CCC through the Build Back Better Act have stalled.
	The Secretary of the Interior ... shall submit a report to the Task Force within 90 days of the date of this order recommending steps that the United States should take, working with State, local, Tribal, and territorial governments, agricultural and forest landowners, fishermen, and other key stakeholders, to achieve the goal of conserving at least 30 percent of our lands and waters by 2030.	4/27/2021	Complete: Conserving and Restoring America the Beautiful report released in May 2021 and progress report released in December 2021
	The Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, shall initiate efforts in the first 60 days from the date of this order to collect input from fishermen, regional ocean councils, fishery management councils, scientists, and other stakeholders on how to make fisheries and protected resources more resilient to climate change.	3/27/2021	Status Unknown
	There is hereby created within the Executive Office of the President a White House Environmental Justice Interagency Council (Interagency Council). The Chair of the Council on Environmental Quality shall serve as Chair of the Interagency Council	1/27/2021	Completed: White House Environmental Justice Interagency Council established on January 27, 2021 and members announced on March 29, 2021

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (1/27/21)	The Interagency Council shall, within 120 days of the date of this order, submit to the President, through the National Climate Advisor, a set of recommendations for further updating Executive Order 12898.	5/27/2021	Completed: Justice40, Climate and Economic Justice Screening Tool & Executive Order 12898 Revisions: Interim Final Recommendation report detailing recommendations released May 13, 2021 ¹⁶
	White House Environmental Justice Advisory Council. There is hereby established, within the Environmental Protection Agency, the White House Environmental Justice Advisory Council (Advisory Council), which shall advise the Interagency Council and the Chair of the Council on Environmental Quality.	1/27/2021	Completed: WHEJAC established on January 27, 2021
	The Chair of the Council on Environmental Quality shall, within 6 months of the date of this order, create a geospatial Climate and Economic Justice Screening Tool and shall annually publish interactive maps highlighting disadvantaged communities	7/27/2021	Completed: Beta version of the Climate and Economic Justice Screening Tool released in February 2022. The tool is still being updated and receiving input.
	The Secretary of Health and Human Services shall, consistent with applicable law and within existing appropriations: (i) establish an Office of Climate Change and Health Equity (OCCHE) to address the impact of climate change on the health of the American people; and (ii) establish an Interagency Working Group to Decrease Risk of Climate Change to Children, the Elderly, People with Disabilities, and the Vulnerable as well as a biennial Health Care System Readiness Advisory Council, both of which shall report their progress and findings regularly to the Task Force.	Unknown	Completed: IWG and Health Care System Readiness Advisory Council established

¹⁶ For additional resources, see the May 13, 2021, [CEQ statement on recommendations](#) and the March 29, 2021, White House [press release on recommendations](#).

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (1/27/21)	Justice40 Initiative. (a) Within 120 days of the date of this order, the Chair of the Council on Environmental Quality, the Director of the Office of Management and Budget, and the National Climate Advisor, in consultation with the Advisory Council, shall jointly publish recommendations on how certain Federal investments might be made toward a goal that 40 percent of the overall benefits flow to disadvantaged communities.	5/27/2021	Completed: Justice40, Climate and Economic Justice Screening Tool & Executive Order 12898 Revisions: Interim Final Recommendation report released in May 2021
	Within 60 days of the recommendations described in subsection (a) [see row above] of this section, agency heads shall identify applicable program investment funds based on the recommendations and consider interim investment guidance to relevant program staff, as appropriate and consistent with applicable law.	7/27/2021	Status Unknown
	By February 2022, the Director of the Office of Management and Budget [with other agencies] shall, to the extent consistent with applicable law, publish on a public website an annual Environmental Justice Scorecard detailing agency environmental justice performance measures.	February 2022	Pending: A January 26, 2022 White House Factsheet states that “[a]n annual Federal environmental justice scorecard, the first of which will be published this year, will report on agencies’ progress in the implementation of the Justice40 Initiative and other key environmental justice priorities and commitments.” WHEJAC recommendations on the scorecard have been released.

Title	Commitment	Commitment Due Date	Status of Commitment
<p>Executive Order 14030: Executive Order on Climate-Related Financial Risk (5/20/21)</p>	<p>Climate-Related Financial Risk Strategy. The Assistant to the President for Economic Policy and Director of the National Economic Council (Director of the National Economic Council) and the Assistant to the President and National Climate Advisor (National Climate Advisor ... shall develop, within 120 days of the date of this order, a comprehensive, Government-wide strategy regarding:</p> <p>(a) the measurement, assessment, mitigation, and disclosure of climate-related financial risk to Federal Government programs, assets, and liabilities in order to increase the long-term stability of Federal operations;</p> <p>...</p> <p>(c) areas in which private and public investments can play complementary roles in meeting these financing needs — while advancing economic opportunity, worker empowerment, and environmental mitigation, especially in disadvantaged communities and communities of color.</p>	<p>9/20/2021</p>	<p>Completed: Report submitted October 14, 2021: A Roadmap to Build a Climate-Resilient Economy</p>
	<p>... The Secretary of the Treasury, as the Chair of the Financial Stability Oversight Council (FSOC), shall ... issu[e] a report to the President within 180 days of the date of this order on any efforts by FSOC member agencies to integrate consideration of climate-related financial risk in their policies and programs.</p>	<p>11/20/2021</p>	<p>Completed: Report Submitted October 2021: Report on Climate-Related Financial Risk</p>

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14030: Executive Order on Climate-Related Financial Risk (5/20/21)	<p>[T]he Secretary of Labor shall:</p> <p>(a) identify agency actions that can be taken ... to protect the life savings and pensions of United States workers and families from the threats of climate-related financial risk;</p> <p>(b) consider publishing, by September 2021, for notice and comment a proposed rule to suspend, revise, or rescind "Financial Factors in Selecting Plan Investments," ...</p> <p>(c) assess ... how the Federal Retirement Thrift Investment Board has taken environmental, social, and governance factors, including climate-related financial risk, into account; and</p> <p>(d) within 180 days of the date of this order, submit to the President, through the Director of the National Economic Council and the National Climate Advisor, a report on the actions taken pursuant to subsections (a), (b), and (c) of this section.</p>	11/20/2021	<p>Status Unknown:</p> <p>On February 11, 2022, the Department of Labor released a request for comment on what actions, if any, the department should take under federal law to protect retirement savings and pensions from risks associated with changes in climate. The public comment period ended on May 16, 2022. No follow-up has been released yet.</p>

Title	Commitment	Commitment Due Date	Status of Commitment
<p>Executive Order 14030: Executive Order on Climate-Related Financial Risk (5/20/21)</p>	<p>The Director of OMB and the Director of the National Economic Council ... shall develop recommendations for the National Climate Task Force on approaches related to the integration of climate-related financial risk into Federal financial management and financial reporting, especially as that risk relates to Federal lending programs.</p> <p>The Director of OMB, in consultation with the Secretary of the Treasury, the Chair of the Council of Economic Advisers, the Director of the National Economic Council, and the National Climate Advisor, shall identify the primary sources of Federal climate-related financial risk exposure and develop methodologies to quantify climate risk within the economic assumptions and the long-term budget projections of the President’s Budget.</p> <p>The Director of OMB and the Chair of the Council of Economic Advisers, in consultation with the Director of the National Economic Council, the National Climate Advisor, and the heads of other agencies as appropriate, shall develop and publish annually, within the President’s Budget, an assessment of the Federal Government’s climate risk exposure.</p>	<p>Annually</p>	<p>Completed: Two reports released in April 2022—Climate Risk Exposure: An Assessment of the Federal Government's Financial Risks to Climate Change and Federal Budget Exposure to Climate Risk</p>
<p>Executive Order 14052: Executive Order on Implementation of the IJJA (11/15/21)</p>	<p>In implementing the Act, all ... shall, as appropriate and to the extent consistent with law, prioritize:</p> <p>...</p> <p>(d) investing public dollars equitably, including through the Justice40 Initiative, which is a Government-wide effort toward a goal that 40 percent of the overall benefits from Federal investments in climate and clean energy flow to disadvantaged communities.</p>	<p>Unknown</p>	<p>Completed: OMB Guidance on IJJA Implementation released in April 2022 with detailed attention to equity but no specific references to resilience</p>

Title	Commitment	Commitment Due Date	Status of Commitment
Executive Order 14052: Executive Order on Implementation of the IJJA (11/15/21)	<p>In implementing the Act, all agencies (as described in section 3502(1) of title 44, United States Code, except for the agencies described in section 3502(5) of title 44), shall, as appropriate and to the extent consistent with law, prioritize:</p> <p>...</p> <p>(e) building infrastructure that is resilient and that helps combat the crisis of climate change.</p>	Unknown	Status Unknown: No due date given
Executive Order 14057: Executive Order on Catalyzing Clean Energy Industries and Jobs through Federal Sustainability (12/8/21)	<p>The heads of principal agencies shall develop, implement, and update Climate Adaptation and Resilience Plans that build on the agency's plan submitted pursuant to section 211 of Executive Order 14008.</p>	5/27/2021	Completed: First round of federal climate adaptation plans : published August 2021
Executive Order 14057: Executive Order on Catalyzing Clean Energy Industries and Jobs through Federal Sustainability (12/8/21)	<p>The following Federal Leaders working groups are hereby established, to be housed within CEQ: 100 Percent 24/7 Carbon Pollution-Free Electricity; Zero-Emission Vehicle Fleets; Net-Zero Emissions Buildings; Net-Zero Emissions Procurement, including a Buy Clean Task Force; and Climate Adaptation and Resilience.</p>	12/8/2021	Completed: Federal Leaders Working Groups established December 8, 2021
Executive Order 14072: Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies (4/22/22)	<p>The Secretary of the Interior, with respect to public lands managed by the Bureau of Land Management, and the Secretary of Agriculture, with respect to National Forest System lands, shall, within 1 year of the date of this order, define, identify, and complete an inventory of old-growth and mature forests on Federal lands, accounting for regional and ecological variations, as appropriate, and shall make such inventory publicly available.</p>	4/22/2023	Pending: Due date not passed yet

Title	Commitment	Commitment Due Date	Status of Commitment
<p>Executive Order 14072: Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies (4/22/22)</p>	<p>The Secretaries, in coordination with the heads of other agencies as appropriate, shall within 1 year of the date of this order:</p> <p>(i) develop a Federal goal that charges agencies to meet agency-specific reforestation targets by 2030, including an assessment of reforestation opportunities on Federal lands and through existing Federal programs and partnerships;</p> <p>(ii) develop, in collaboration with Federal, State, Tribal, and private-sector partners, a climate-informed plan (building on existing efforts) to increase Federal cone and seed collection and to ensure seed and seedling nursery capacity is sufficient to meet anticipated reforestation demand; and</p> <p>(iii) develop, in coordination with the Secretary of Commerce, with State, local, Tribal, and territorial governments, and with the private sector, nonprofit organizations, labor unions, and the scientific community, recommendations for community-led local and regional economic development opportunities to create and sustain jobs in the sustainable forest product sector, including innovative materials, and in outdoor recreation, while supporting healthy, sustainably managed forests in timber communities.</p>	<p>4/22/2023</p>	<p>Pending: Due date not passed yet</p>
	<p>The Chair of the Council on Environmental Quality [with other agencies] will submit a report to the National Climate Task Force to identify key opportunities for greater deployment of nature-based solutions across the Federal Government, including through potential policy, guidance, and program changes.</p>	<p>Unknown</p>	<p>Pending: No due date given</p>

APPENDIX C. EXECUTIVE BRANCH BUDGETARY COMMITMENTS TO RESILIENCE

This appendix highlights the executive branch’s commitments to financially addressing climate resilience, as evidenced by its budget requests to congress. Specifically, we evaluate the degree to which climate resilience is mentioned in the proposed fiscal year (FY) 2023 agency budget justifications as compared to those from the two previous administrations. We find evidence to show that the Biden administration’s heightened attention to climate resiliency and equity has been reflected in agency budget requests, indicating desire for programmatic action by the executive branch on these topics.

Administration 2023 budget proposals for climate resilience

The Biden administration claims that climate resilience is among its budgetary priorities. According to the March 2022 White House [press release](#), the proposed 2023 budget includes “more than \$18 billion for climate resilience and adaptation programs across the Federal Government.” Some investments represent new spending on climate resiliency and adaptation, while others can be attributed to a rebranding of ongoing government programs (e.g. long-running ecosystem restoration and management programs in the Department of the Interior [DOI]) as efforts explicitly supporting climate resilience.

The administration’s emphasis on climate resilience has already been reflected in budget increases for some key programs:

- \$3.9 billion for wildland fire management, an increase of \$778 million more than FY 2021 for the US Forest Service
- \$507 million for FEMA’s flood hazard mapping program to incorporate climate science and future risks, a \$93 million increase above FY 2021
- \$1.2 billion to increase resilience and mitigate the impacts of climate change on private working agricultural lands through the USDA’s Natural Resources Conservation Service, an increase from \$1.025 billion from FYs 2021 and 2022

Likewise, a portion of IIJA spending is earmarked for resilience (e.g. \$1.6 billion for the Bureau of Reclamation to address the historic drought in the West, \$1.5 billion for wildland fire management, and \$466 million for tribal climate resilience and infrastructure).

We were interested in understanding how the current administration’s emphasis on climate resilience was reflected in agency budget requests, and how that compared to the budget requests of the previous two administrations. While it was not possible to systematically assess new spending on climate resilience, because of a lack of detailed budgetary allocations associated with resilience, as a surrogate we assessed the Biden administration’s agency budget summaries for references to climate resiliency to provide a sense of how important resilience was in agency programming and planning.

Historical comparison of resiliency references in budget proposals

To determine trends in the financial commitment to climate resilience, we compared references to climate resilience–related terms in the seven agency budget summaries from the current and two previous administrations. Specifically, we tabulated the number of mentions of four key terms related to climate resiliency (adaptation, resilience, climate change, and equity) in budget summaries accompanying annual agency budget requests. We reviewed the budget summaries of the EPA, Department of Commerce (Commerce), DOD, USDA, Department of Justice (DOJ), DOI, and Department of the Treasury (Treasury), HUD, and Department of Homeland Security (DHS), specifically FEMA within DHS. We compared budget summaries for the second year of an Obama, Trump, and Biden presidential term: 2014, 2018, and 2022.

In cases where the resilience-related term was used in a context that was not relevant to climate change, it was removed from the tabulation. For example, the term resilience as it referred to the DOJ’s 2018 program called “Preventing Violence against Law Enforcement Officer Resilience” was not included in the final count.

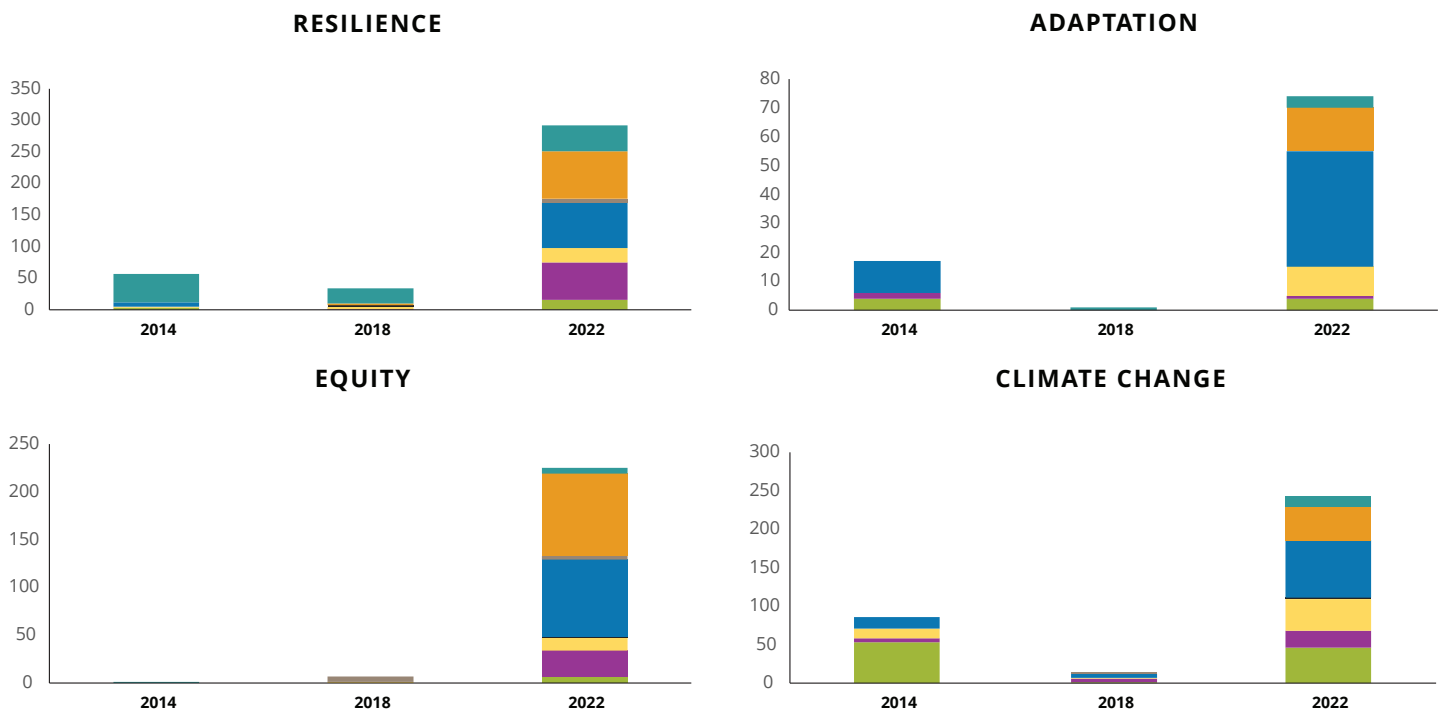
The trends in the frequency of climate resilience-related references in budget summaries suggest but do not demonstrate actual changes in budgetary allocations towards resiliency. Establishing this correlation would require relatively subjective determinations of how every proposed budgetary line item relates to resiliency and no such taxonomy currently exists to guide such an assessment. However, the frequency that agencies use climate-resiliency terms to justify their proposed spending should serve as a robust indicator of how an administration envisions this priority.

Findings

We observed that, across all agencies and across all four resiliency terms, total references were higher in 2022 (Biden administration) than in 2014 (Obama administration), which, in turn, were higher than in 2018 (Trump administration). This increase in references to resiliency in the Biden administration’s agency budget summaries suggests a stronger commitment to climate resilience as compared to past administrations.

A breakdown of the trends related to individual terms and individual agencies is informative. For example, references to *equity* as it relates to climate and resilience increased proportionately more from 2014 and 2018 to 2022 than the other three terms. *Equity* was not mentioned at all in 2014 and just once in 2018. *Adaptation*, by comparison, was the least-frequently used term during each of the three administrations. In 2022, for instance, *adaptation* was referenced less than a third (74) of the total references for each of the other terms (225 for *equity*, 242 for *climate change*, 292 for *resilience*).

Figure C1. Frequency of key terms in agency budgets



Note: Years were selected to reflect the same points during Obama’s second term (2014), Trump’s first term (2018), and Biden’s first term (2022).

An examination of individual agency budget summaries reveals how different agencies interpreted their roles in this administration. For example, DOI and HUD—agencies with responsibilities that include federal land management, conservation, and federal housing infrastructure—had significant increases in the use of all four key terms in 2022. The EPA, the primary agency responsible for implementing and enforcing environmental protection regulations, in both 2014 and 2022 used climate change (which could refer to mitigation as well as resilience) more than the other three terms examined. FEMA has been using the term resilience since at least 2014—in reference to their responses to natural disasters—and this has continued in the Biden administration. This reflects their acknowledgement that emergency management is a key feature of resiliency.

In sum, the increase in stated commitments and earmarked funding for achieving climate and resilience goals demonstrates an intent on behalf of federal agencies to prioritize addressing climate risk, though the direct correlation with achieving resiliency goals has not yet been measured.

APPENDIX D. LEGISLATIVE BRANCH CLIMATE RESILIENCE BIPARTISAN LEGISLATION

Table D1. Bipartisan resilience-relevant bills introduced during the 117th Congress*

Legislation Name	Date First Introduced	Senate Bill Number	House Bill Number	Taking a Whole-of-Government Approach	Recognizing Financial Risks	Empowering State, Tribal, Local Actors, and/or Disadvantaged Communities	Building Knowledge and Capacity
Flood Resiliency and Taxpayer Savings Act of 2021	1/25/2021		H.R.481		x	x	x
Clean Energy and Sustainability Accelerator Act	2/4/2021		H.R.806		x	x	
National Ocean Exploration Act	2/23/2021	S.381		x		x	x
Enhancing State Energy Security Planning and Emergency Preparedness Act of 2021	2/25/2021		H.R.1374			x	
Water Quality Protection and Job Creation Act of 2021	3/16/2021		H.R.1915	x		x	
Disaster Savings and Resilient Construction Act of 2021	3/17/2021		H.R.1984		x		
Drinking Water and Wastewater Infrastructure Act of 2021	3/23/2021	S.914			x	x	x
Outdoor Restoration Partnership Act of 2021	4/20/2021	S.1248	H.R.2682		x	x	
Rebuilding Stronger Infrastructure Act	4/20/2021	S.1236			x	x	
Utility Resilience and Reliability Act	4/26/2021		H.R.2854				
Preventing Outages with Enhanced Resilience and Operations Nationwide (POWER ON) Act of 2021	4/28/2021	S.1432	H.R.2885		x		
Resilient Ports Act	5/7/2021		H.R.3033		x		
Joint Chiefs Landscape Restoration Partnership Act of 2021	5/13/2021	S.1603	H.R.3211	x	x		
Wildfire Emergency Act of 2021	5/26/2021	S.2806/ S.1885†	H.R.3534†	x	x	x	
Regional Ocean Partnership Act of 2021	5/27/2021	S.1894	H.R.3817	x			x
National Ocean and Coastal Security Improvements Act of 2021	6/15/2021		H.R.3892		x	x	
Resilient Federal Forests Act	7/22/2021		H.R.4614	x	x		
America's Revegetation and Carbon Sequestration Act of 2021	9/23/2021	S.2836		x		x	x
Disaster Resiliency Planning Act	1/13/2022	S.3510	H.R.7863		x		
National Climate Adaptation and Resilience Strategy Act	1/20/2022	S.3531	H.R.6461	x	x	x	x
Community Disaster and Resilience Zones Act of 2022	3/17/2022	S.3875	H.R.7242				x

* The contents of each bill have been analyzed to see whether it addresses any of the four recommendation areas from the original Resilience Roadmap report.

† Indicates companion bill that is not bipartisan.

In an increasingly divided political landscape, resilience is one of few policy areas gaining broad geographic and bipartisan support. There is growing concern about climate risks in communities across the United States that is translating into interest and action by policy makers across the political spectrum. A consensus is forming that federal spending must address climate resilience to help protect infrastructure and buildings, the health and well-being of communities, and the nation's natural capital. During the 117th Congress, 21 bipartisan bills that address some aspect of resilience have been introduced. The most comprehensive of these bills, [NCARS](#), has three Democrat and four Republican sponsors/cosponsors in the Senate and two Democrat and two Republican sponsors/cosponsors in the House.

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About Resilience Roadmap

The [Resilience Roadmap](#) project seeks to offer actionable recommendations to support the Biden administration's commitment to mobilize the federal government and the American people to build greater climate resilience in infrastructure, communities, and ecosystems, guided by principles of equity and environmental justice. [Leading resilience experts](#) from states, local communities, civil society, academia, and the private sector, many of whom formerly worked in the federal government and on the frontlines of the climate change battle, have volunteered their time and knowledge for this vital national effort.

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The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to help decision makers in government, the private sector, and the nonprofit community address critical environmental challenges. The Nicholas Institute responds to the demand for high-quality and timely data and acts as an "honest broker" in policy debates by convening and fostering open, ongoing dialogue between stakeholders on all sides of the issues and providing policy-relevant analysis based on academic research. The Nicholas Institute's leadership and staff leverage the broad expertise of Duke University as well as public and private partners worldwide. Since its inception, the Nicholas Institute has earned a distinguished reputation for its innovative approach to developing multilateral, nonpartisan, and economically viable solutions to pressing environmental challenges.

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