DHS STRATEGIC FRAMEWORK FOR ADDRESSING CLIMATE CHANGE

October 21, 2021

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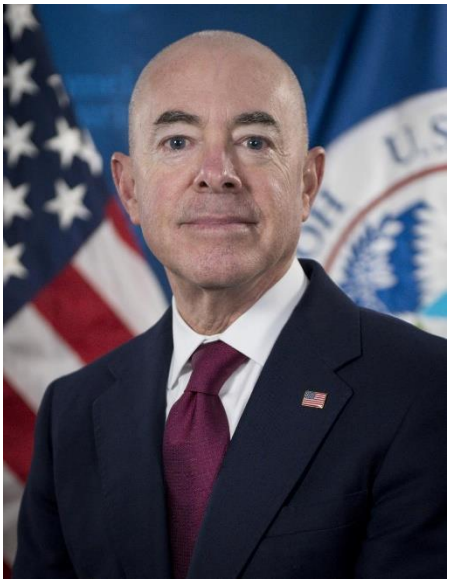
Message from the Secretary



Since its inception, the Department of Homeland Security (DHS) has led national efforts to protect our communities from threats both seen and unseen. To execute this critical mission, our Department has continued to adapt to an evolving threat environment. From terrorism to natural disasters, the unprecedented COVID-19 pandemic to emerging cyber threats, DHS remains prepared to safeguard our Homeland. We must now apply that same spirit of innovation, agility, and public service towards combatting the climate emergency, which poses an existential threat to our country and the world.

The most recent report issued by the Intergovernmental Panel on Climate Change makes clear that the impacts of the climate emergency on both our national and global security are vast. Whether it is extreme heat in the northwest or extreme storms in the southeast, our Nation, and particularly those most vulnerable, are already experiencing the effects of human-induced climate change. With the greatest impacts still on the horizon, our Department must strategically leverage its expertise, resources, and authorities to tackle climate change and increase resilience across our country.

To that end, I am proud to present the first DHS Strategic Framework for Addressing Climate Change. This document supports the implementation of Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (January 27, 2021) and will guide how our Department will continue to combat climate change. The need to achieve equity will be a guiding principle throughout each line of effort described in this strategic framework.

DHS is on the forefront of national efforts to address the impacts of climate change, including by leading efforts to build resilience in communities across our country, and remains committed to tackling the climate crisis and safeguarding our Nation from its related impacts.

Alejandro N. Mayorkas
Secretary

Executive Summary

The impacts of climate change pose both an acute and a systemic threat to the safety, security, and prosperity of the United States. This human-induced warming has already led to changes in the environment, such as rising ocean temperatures, shrinking sea ice, rising sea levels, and ocean acidification. As our climate continues to warm, the Nation will experience even more extreme climate change related disasters, such as heat waves, droughts, wildfires, coastal storms, and inland flooding. These hazards often disproportionately affect the Nation's most vulnerable communities.

As the Department of Homeland Security (DHS) continues to support and coordinate across the homeland security enterprise to address impacts of climate change, the Department will also model best practices to mitigate our own carbon footprint and build resilient capacity to adapt to a rapidly changing environment. This Framework provides the overarching goals, principles, and lines of effort for the Department to counter the effects of climate change on the homeland and join in the global effort to mitigate climate change.

Strategic Ends for Addressing the Climate Change Challenge

DHS will:

- safeguard the homeland from current and projected climate change-driven disasters;
- inform Americans so that they can adapt to current and projected risks and increase national resilience;
- foster resilience, adaptation, and recovery efforts that reduce risk and harm from climate change, and that address associated disparities such as those based on race and income level, pursue environmental justice, and create opportunity for all Americans;
- enable a thriving economy that supports our national security and way of life; and,
- model sustainable resilience while remaining fully operational despite the impact of climate change on DHS personnel, assets, and facilities.

Guiding Principles

These guiding principles describe how DHS will pursue its strategic ends:

- Foresight – Incorporating climate science into DHS activities will enable us to prepare for a future that will differ dramatically from the past.
- Unity of Effort – Cooperation and leadership across all levels of government and society will enhance streamlined efforts.
- Innovation – Building and sustaining a culture that rewards the implementation of forward-leaning technology, policy, and planning will drive positive impact across the Department and the Nation.

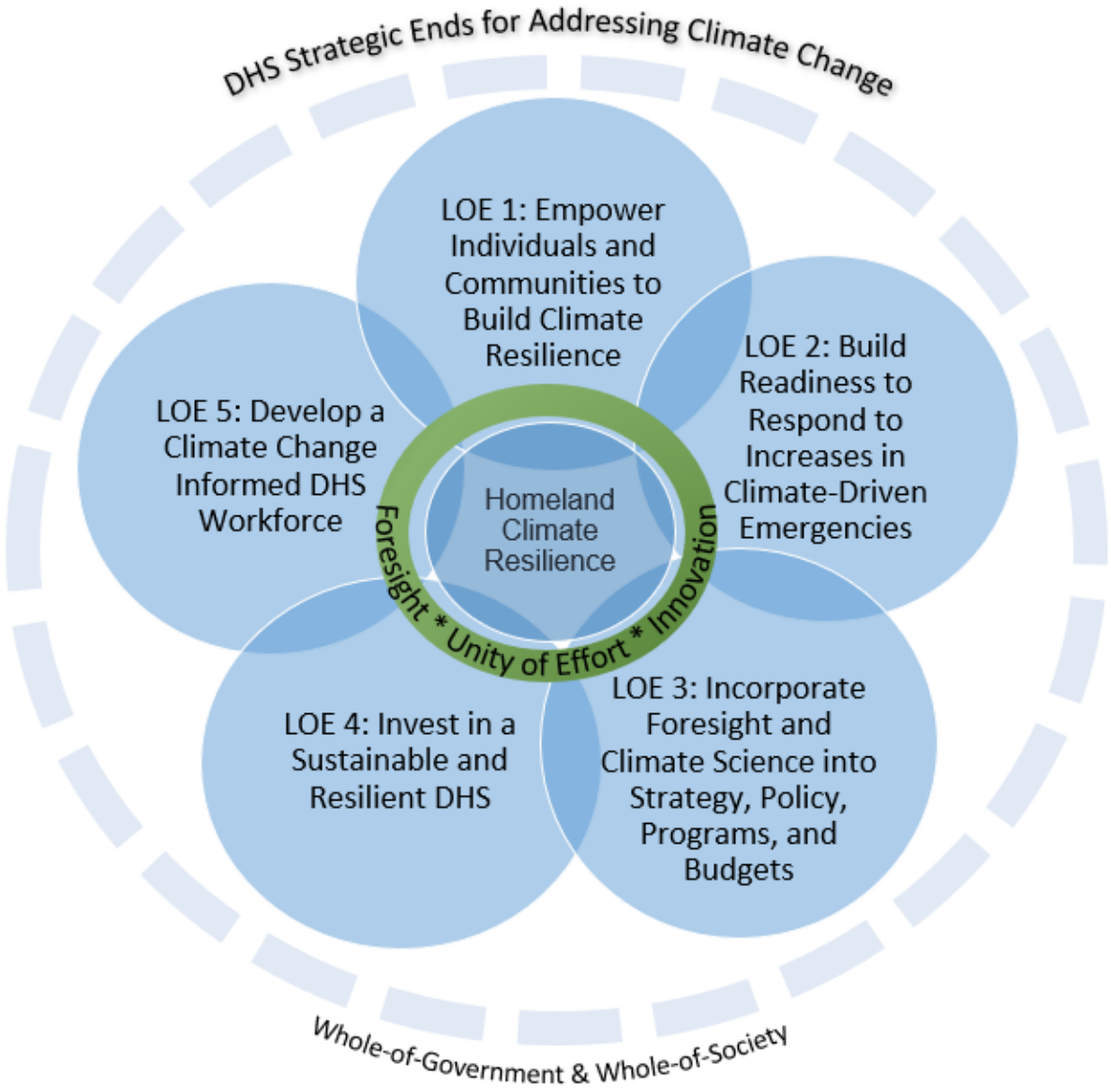
Lines of Effort

DHS will pursue five interconnected lines of effort. Throughout each line of effort described below, the need to achieve equity will be a guiding principle.

- Empower Individuals and Communities to Build Climate Resilience.
- Build Readiness to Respond to Increases in Climate-Driven Emergencies.
- Incorporate Foresight and Climate Science into Strategy, Policy, Programs, and Budgets.
- Invest in a Sustainable and Resilient DHS.
- Develop a Climate Change-Informed DHS Workforce.

Conclusion

This Framework will guide DHS's efforts to address the climate challenge over the coming years. Combined, the five lines of effort implemented through the lens of the guiding principles will enable us to safeguard the homeland from the immediate impacts of climate change, while pursuing long-term solutions that support resilient, prosperous communities and safeguard critical national security interests.



Introduction

DHS is on the frontlines of the climate change crisis, with a duty to safeguard the homeland from today's increasingly severe, frequent, and destructive climate change-related emergencies, forecasting and preparing for future risks and opportunities created by tomorrow's challenges. As the Department leads efforts to equitably increase the Nation's resilience, DHS must adapt to changes in the climate change risk landscape resulting from strategic competition, demographic trends, aging infrastructure, and emerging technology. In the coming decades, this landscape has the potential to create new opportunities or heighten existing risks.

This Framework provides overarching goals, principles, and lines of effort for the Department to reduce the impacts of climate change and prepare for its affects across the Nation. The

Framework applies to strategy, plans, policy, and budgets across DHS, and will guide our efforts to implement Executive Order (EO) 14008: Tackling the Climate Change Crisis at Home and Abroad, [1] as well as the latest National Security Guidance[2] and additional related executive orders.[3] Other complementary efforts include the DHS Climate Action Plan (CAP), focusing on integrating climate adaptation into the Department's mission, operation, and infrastructure, and the DHS Strategic Approach to Arctic Homeland Security, which seeks to establish a secure and prosperous Arctic region.

DHS will continue to incorporate and act on new knowledge, information, and guidance as these become available, rather than prescribe a static list of activities. Examples provided in this document are illustrative starting points based on the important work already being done across the Department. **These examples should not be considered a comprehensive list or the limit of our aspirations.**

[1] Executive Office of the President. "Executive Order 14008." January 27, 2021. https://www.federalregister.gov/executive-order/14008.
[2] Executive Office of the President. "Interim National Security Strategic Guidance." March 3, 2021 https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf
[3] Executive Office of the President. "Executive Order 13990." January 20, 2021. https://www.federalregister.gov/executive-order/13990.
Executive Office of the President. "Executive Order 13985." January 20, 2021 https://www.federalregister.gov/executive-order/13985.
Executive Office of the President. "Executive Order 14013." February 4, 2021 https://www.federalregister.gov/executive-order/14013.
Executive Office of the President. "Executive Order 14030." May 20, 2021 https://www.federalregister.gov/executive-order/14030.

Terminology

- **Climate Resilience:** The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from climate related disruptions, challenges, and risks through adaptability, innovation, and preparedness (Reference: DHS Climate Resilience Directive, 2016).

- **Climate Change Adaptation**: Adjustment of natural or human systems to a new or changing environment (Reference: DHS Climate Resilience Directive, 2016). *These actions are generally taken to reduce risk to people or communities.*

- **Climate Change Mitigation**: Reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere (Reference: National Aeronautics and Space Administration's (NASA) Responding to Climate Change).

- **DHS Operational Climate Change Activities**: Actions taken to make DHS facilities, personnel, and support operations resilient to the threats posed by climate change or to reduce their contributions to climate change. *Examples include transitioning the DHS fleet of government vehicles from reliance on petroleum fuel sources to electric power or rebuilding a DHS facility to a higher elevation after a storm.*

- **National Climate Change Activities**: Altering DHS strategies, plans, and programs to build national resilience, address new or amplified climate related threats to the homeland, and encourage the American people and U.S. entities, including state, local, tribal, and territorial (SLTT) governments, to adjust to new or changing environmental conditions posed by climate change (Reference: Adjusted based on section 103(e), EO 14008). *Examples include altering the National Flood Insurance Program to discourage communities from rebuilding in areas with high future flood risk. Another example is shifting long-term strategic planning and operational priorities, such as preparing for an expanded DHS mission in an increasingly accessible Arctic.*

The Climate Change Challenge

Today's environment is the warmest period in the history of modern civilization. The 2018 National Climate Assessment identifies that the global annually averaged temperature measured over both land and oceans has increased by approximately 1.8°F (1.0°C) according to data available from 1901 to 2016; 1.2°F (0.65°C) of that rise was measured between 1986 and 2015.[4] Furthermore, the United Nations Intergovernmental Panel on Climate Change (IPCC) issued a report on August 9, 2021 assessing that global warming is occurring at a faster rate than scientists previously thought and that some of the damage caused by climate change may be irreversible. While the change in temperature may appear small, this incremental rise causes devastating effects such as rising ocean temperatures, shrinking sea ice, rising sea levels, heatwaves, droughts, and ocean acidification that impact DHS missions. These trends are already resulting in record rain events and wildfires, as well as increases in the number of coastal storms and inland flooding. Even with timely action on climate change mitigation, the homeland will continue to experience these impacts for decades to come.

Climate change poses a direct threat to the homeland in the form of increasingly severe and unpredictable natural disasters.[5] Since 1980, there have been 298 "billion-dollar natural disasters," such as hurricanes, floods, droughts, and wildfires in the United States, inflicting at least $1.97 trillion in damages. These severe weather and climate disasters have claimed 14,492 lives in the last four decades. The annual average for billion-dollar (adjusted for inflation) disasters from 1980 to 2020 was 7.1 events.[6] The annual average between 2016 and 2020 was 16.2 events[7] with more than a quarter of all "billion-dollar" disasters occurring in the last five years. These statistics represent not only extraordinary losses in terms of life, property, and economic resources, but also deep disruption and suffering for millions of Americans and their communities.

In addition to driving large-scale disasters, climate change will lead to an increase in chronic stressors such as high tide (i.e., sunny day or nuisance) flooding and droughts. For example, Morgans Point and Barbours Cut in Texas, a major deep water port area in the Greater Houston region, are projected to have 215 days of "sunny day flooding" by 2050, which is almost a tenfold increase compared to its record number of 22 high tide flooding days. Between May 2020 and April 2021, U.S. coastal communities experienced twice as many nuisance flooding days compared to 20 years ago. Fourteen of those communities along the Southeast Atlantic and Gulf coastlines saw "a 400-1100% increase over what was experienced in 2000."[8] At the same

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[4] Hayhoe, K., D.J. Wuebbles, D.R. Easterling, D.W. Fahey, S. Doherty, J. Kossin, W. Sweet, R. Vose, and M. Wehner, 2018: Our Changing Climate. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 72–144. doi: 10.7930/NCA4.2018.CH2

[5] Summary Findings. *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. https://nca2018.globalchange.gov/#sf-2

[6] OAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2021). https://www.ncdc.noaa.gov/billions/, DOI: 10.25921/stkw-7w73. Note: The 2016-2020 average excludes the record-breaking losses associated with Hurricanes Katrina and Sandy.

[7] Ibid.

[8] The State of High Tide Flooding and Annual Outlook, https://tidesandcurrents.noaa.gov/HighTideFlooding_AnnualOutlook.html

time, the historic drought in the Colorado River Basin led to the Bureau of Reclamation to declare the first-ever water shortage – triggering reduction in the state annual apportionment by 18% in Arizona and 7% in Nevada in 2022.[9] Combined with aging infrastructure prone to impacts of climate change, these trends will put countless American communities at risk and threaten National Critical Functions[10] such as distributing electricity, producing and providing agricultural products and services, or ensuring the transport of cargo and passenger by vessel.[11]

As climate change converges with other drivers, especially geostrategic competition, emerging technology, and global-demographic trends, it is reshaping the risk landscape. An increasingly accessible Arctic has already emerged as a competitive space with national security implications, including competition over resources such as fish, water, and minerals that will intensify. The global increase in natural disasters will also drive up the number and severity of humanitarian crises.

The corrosive impact of these trends will make nations increasingly vulnerable to domestic instability, with sweeping implications for regional and border security and core national security interests. Simultaneously, revisionist nations will seek to exploit climate change induced instability to erode the rules-based order that is central to the security and prosperity of the United States and its allies. More specifically, an influx of climate-related migration through the U.S.-Mexico border and climate-induced existential threats to Arctic communities and Alaska Native culture will accelerate and require our proactive actions to manage future border crises and potential relocation of internally-displaced populations.

Additionally, the Department's own personnel, assets, and facilities are subject to the impacts of climate change. DHS must place an emphasis on climate change and its effects on our internal operations and mission areas. Accompanying the global effort to combat climate change is likely to result in the adoption of technologies and regulations that have their own cascading effects on the Department, such as modifications in procurement and acquisition process for fleet vehicles. This evolving situation creates operational and logistical challenges we must also overcome to safeguard and secure the homeland.

[9] Reclamation announces 2022 operating conditions for Lake Powell and Lake Mead, https://www.usbr.gov/newsroom/#/news-release/3950

[10] National Critical Functions are defined as the functions of government and the private sector so vital to the U.S. that their disruption, corruption, or dysfunction would have a debilitating effect on security, national economic security, or any combination thereof.

[11] Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner, 2018: Overview. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 33–71. doi: 10.7930/NCA4.2018.CH1

Strategic Ends for Addressing the Climate Change Challenge

DHS, as part of the whole-of-government and whole-of-society response to the climate change challenge, will:

- safeguard the homeland from current and projected climate change-driven disasters;
- inform Americans so that they can adapt to current and projected risks and increase national resilience;
- foster resilience, adaptation, and recovery efforts that reduce both risks and harms from climate change, and that address associated disparities such as those based on race and income level, pursue environmental justice, and create opportunity for all Americans;
- enable a thriving economy that supports our national security and way of life; and,
- model sustainable resilience while remaining fully operational despite the impact of climate change on DHS personnel, assets, and facilities.

Guiding Principles

The three guiding principles of this Framework are preconditions for success in the collective effort to address climate change, and will be incorporated into planning and decision-making at every level of the organization.

Foresight – Strategic foresight is a powerful tool for confronting deep uncertainty and complexity. Incorporating climate science into DHS planning assumptions and activities will enable the Department to prepare for a future that will differ dramatically from the past and present due to climate change. It will empower DHS to seize the opportunities that accompany the unknown, not simply to manage the risks. To ensure the Department is ready to serve the homeland well into the future, we will infuse strategic foresight and climate science, with full appreciation of uncertainty, into the development of all strategies, plans, programs, and budgets**.**

Unity of Effort – Understanding, mitigating, and adapting to climate change and its impacts requires cooperation across every level of government and society. The Department's unique leadership role within the broader homeland security enterprise is particularly valuable for confronting these challenges. DHS will proactively engage with other federal departments and agencies, SLTT and international partners, industry, academia, non-governmental organizations, and the American public at large. DHS will coordinate closely with other agencies to access the best climate science, support interdisciplinary problem solving, and make the best use of limited time and resources.

Innovation – Addressing the constantly changing risks created by climate change and its impacts on homeland security demands a culture of innovation, both public and private. This innovation is not isolated to individual technologies but includes developing new ways to apply existing capabilities and authorities to solve emerging problems. DHS must foster a national culture that rewards experimentation across the enterprise and rapid implementation of forward-leaning technology, policy, and planning to drive positive impact throughout the Nation.

Leveraging a culture of innovation empowered by strategic foresight in service to a unified approach will provide us the opportunity to create new ways to understand and manage the rapidly evolving and emerging risks and opportunities of today and tomorrow. A key goal will be also to promote private sector innovation to increase mitigation, resilience, and adaptation.

Lines of Effort

DHS will pursue its strategic ends along with five interconnected Lines of Effort.

- Empower Individuals and Communities to Build Climate Resilience.
- Build Readiness to Respond to Increases in Climate-Driven Emergencies.
- Incorporate Foresight and Climate Science into Strategy, Policy, Programs, and Budgets.
- Invest in a Sustainable and Resilient DHS.
- Develop a Climate Change-Informed DHS Workforce.

Each line of effort contributes to the full set of strategic ends and collectively build homeland climate resilience.

Line of Effort 1: Empower Individuals and Communities to Build Climate Resilience

Resilience is not the result of a single government program, but of millions of choices made by individuals, homeowners, businesses, and local governments. DHS will proactively shape those choices through provision of information, education, outreach, leadership, and guidance across its unique network of relationships with SLTT government, industry, non-profits, and academia. The Department will also leverage grantmaking and regulatory tools to incentivize choices that build resilience, foster equity and environmental justice, and mitigate climate change. Armed with timely information and resources, individuals, communities, and organizations will be empowered to make choices that build climate resilience thereby limiting their exposure to future risk while creating new opportunities.

One of DHS's core functions, since its inception, has been providing reliable sources of information and guidance on risk management for the public and private sectors. The risks posed by climate change are particularly complex. While all communities in the U.S. will be impacted by climate change, each community has its own set of unique challenges. The Department will address the

Information as a Service

One of the most valuable resources DHS provides is information. Below are some of the resources DHS provides or contributes that empower communities and industry to prepare for and respond to climate change.

- National Risk Index for Natural Hazards
- Resilience Analysis and Planning Tool
- Regional Resiliency Assessment Program
- Infrastructure Resilience Planning Framework
- Flood Risk Assessment and Reduction Community Guidebook
- Emergency Management Institute Independent Study Courses
- National Preparedness Report
- U.S. Climate Resilience Toolkit

disproportionately high and adverse human health and environmental impacts of climate change on minority communities and low-income neighborhoods that are often co-located in areas with poorer quality infrastructure that can be less able to withstand extreme weather conditions. DHS will ensure leaders in all communities are provided with ***timely, accessible, and tailorable information*** on climate-driven risks, opportunities, and proactive solutions. Each Component will actively engage its stakeholders to gain insight into the unique challenges that climate change creates for them. This outreach will be coordinated with interagency partners and the scientific community in order to present the American public a cohesive set of tools and resources.

Combining timely and accessible information with resources creates the opportunity to mitigate or adapt to climate change before disaster strikes. ***Grants*** deliver critical fiscal resources that enable communities to act. The Building Resilient Infrastructure and Communities (BRIC) Program is a recent example of how this powerful combination can bolster community resilience to preserve communities and prevent billions in future losses. The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. BRIC will fund projects that demonstrate innovative approaches to partnerships, such as shared funding mechanisms, and/or project design. For example, an innovative project may bring multiple funding sources or in-kind resources from a range of private and public sector stakeholders or offer multiple benefits to a community in addition to the benefit of risk reduction. Innovative projects may also incentivize the use of building codes to promote resilience, incorporate advanced cyber capabilities to lessen critical facilities' reliance upon the power grid, and provide underserved communities with improved infrastructure that not only allows them to preserve in the face of climate change, but thrive.

In addition to information sharing and grantmaking, DHS Components have a variety of ***rulemaking*** authorities, which could be applied to incentivize choices that mitigate climate change, increase resilience, promote adaptation, or reduce future exposure to climate-driven risk. These rulemaking authorities can be used to promote and integrate equity and environmental justice in resilience efforts. Many have already begun the process of examining how these tools might be tailored to more effectively confront the climate change challenge. The Department will continue to support these efforts and foster cooperation with other regulatory agencies to enhance unity of effort.

In the wake of a disaster, the Department's role as a trusted source of information and resources are even more critical to a resilient recovery. Trusted and accessible information enables communities to make transformational investment choices. During recovery, communities can combine climate resilience and cyber resilience to build infrastructure that supports long-term success for all its members.

Line of Effort 2: Build Readiness to Respond to Increases in Climate-Driven Emergencies

Even with aggressive action to mitigate climate change, the United States and other countries worldwide will experience increasing weather extremes and environmental stress in the next decades. "Many changes in the climate system become larger in direct relation to increasing global warming. They include increases in the frequency and intensity of hot extremes, marine heatwaves, heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover and permafrost."[12] ***As national disaster incident response demand continues to rise, DHS,[13]as the federal government's largest domestic response organization, has a duty to proactively build capability to respond to increasingly frequent, severe, and unpredictable emergencies.***

DHS and its Components will assess our readiness to respond to increased climate-driven disasters. The Department must take immediate action to mitigate the risks associated with capability and capacity gaps, such as reforming deployable and surge staffing models and increasing the robustness of its continuity planning and federal mission resilience efforts. We will also develop and implement longer-term solutions to address persistent readiness gaps by continuing to lead the broader homeland security enterprise, including SLTT governments, as the Nation prepares for the "new normal" of climate change-driven emergencies.[14]

Climate change disasters, such as heatwaves and droughts, can take place over longer time frames or broader geographic areas than other more acute disruptions. Other impacts, such as "nuisance flooding" are less intense but more chronic. This requires us to think differently about emergency response. DHS and its Components will seek novel ways to employ existing authorities in partnership with other federal agencies to prepare for and respond to crises that fall outside the existing Stafford Act definition of a major disaster or emergency.

DHS will also improve data analytics and business practices to capture the true cost and frequency of climate change related responses and recovery. This information will help provide critical data to inform the national "return on investment" calculus for investing in climate change mitigation and adaptation. It also has the potential to transform how the government

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[12] IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

[13] Federal Mission Resilience is the ability of the Federal executive branch to continuously maintain the capability and capacity to perform essential functions and services, without time delay, regardless of the threats or conditions, and with the understanding that adequate warning of a threat may not be available.

[14] FEMA currently conducts an annual "National Preparedness Report (NPR)," which provides much of this information. The NPR does not, however, address capacity, nor does it base its assessment on the increase in climate-driven disasters or the probability of simultaneous large-scale disasters such as wildfires and hurricanes, or hurricane and pandemics. Additionally, the focus on catastrophic disasters results in an emphasis on low frequency/probability non-climate driven events such as earthquakes.

budgets for disasters – shifting from a reactive tool such as supplemental appropriations and disaster declarations to proactive funding for readiness and resilience.

The challenges created by climate change are daunting, but America's capacity for innovation and problem solving is limitless. DHS will engage with industry, academia, and the public to create and implement solutions to urgent challenges ranging from responder safety to public information sharing. The Department will reference the latest scientific developments and pursue new technologies from the engagements to improve preparedness, response, and recovery, and to translate knowledge and innovation into tools for use by communities.

Line of Effort 3: Incorporate Foresight and Climate Science into Strategy, Policy, Programs, and Budgets

Climate change will interact with strategic competition, demographic changes, and emerging technologies to create new risks and opportunities while also increasing complexity of existing challenges to our national security. For example, while the Northwest Passage became more navigable, the retreating sea ice in the Arctic has also converged with strategic competition with China and Russia to transform the polar region into a competitive space that will require significant attention from DHS. Climate change impacts extend far beyond melting sea ice, with strong implications for the security of our borders, the health of the rules-based order, and America's way of life. ***Climate change impacts have the potential to reshape the missions of DHS for the foreseeable future. We will prepare for these growing challenges through the application of climate science and strategic foresight to strategy, policy, programs, and budgets.***

Working closely with partners across every level of government, in academia, and abroad, the Department will develop a science-based understanding of the climate and our future operating environment. This understanding will be incorporated into the development of strategies and requirements across DHS. In addition to integrating this understanding into departmental investments and strategies, we will work closely with stakeholders ranging from private infrastructure owners to local governments to empower them to do the same. The Department will also prioritize academic engagements and research and development that deepen understanding of the risks and opportunities that climate change creates and pursues solutions that either mitigate climate change or protect the Nation from its impacts. DHS will also continue to support the scientific community's efforts to understand how, why, when, and where the environment is and will be changing. This scientific understanding and knowledge will enable the Department to be both proactive and responsive to the impacts of climate change.

Strategic foresight is a powerful tool for confronting uncertainty. The use of data-informed strategic foresight, including scenario-based planning, will enable DHS to translate global drivers and trends to relevant impacts on the Department's missions.

Foresight in Practice at DHS

The U.S. Coast Guard's (USCG) long running strategic foresight program, known as Project Evergreen, has been instrumental in preparing the Service for the future since its inception in 1996. The foresight fueled project contributed to many key strategic choices, including the establishment of the North Pacific Coast Guard Forum in 2000 and informed the writing of the 2013 and 2019 Arctic Strategies.

A rigorous foresight practice, with strong connections to the policy and budget process, will enable the Department to complement urgent action on climate change with long-term vision. DHS will do more than identify future threats. The Department will also identify creative solutions that may include new authorities or policies, in addition to enhanced capabilities and capacity to address the complex and extended timelines of climate change-driven disasters.

The ultimate use of strategic foresight draws on a wide range of perspectives. The Department will pursue opportunities to engage the whole-of-government and whole-of-society to fully consider how climate change will affect the homeland, and what strategies would prepare the Nation to thrive across a range of potential futures.

Line of Effort 4: Invest in a Sustainable and Resilient DHS

Just as climate change increases the level of risk faced by communities around the globe, DHS personnel, assets, facilities, and operations are affected and imperiled by climate change. To continue serving the public in its hours of greatest need, the Department will ensure that its own facilities, assets, people, and missions are resilient to the impacts of climate change. Additionally, the Department will support the important work of mitigating climate change by working aggressively to reduce our own carbon footprint.

As the third-largest agency in the federal government, DHS has the opportunity to make market-shaping investments into energy efficient buildings and electric government vehicles. We will work closely with other federal, and SLTT partners to ensure these investments are made in a way that advances unity of effort and drives equitable growth.

The Department's primary means of this coordination will be through the DHS CAP. The CAP encompasses and builds on the DHS Resilience Framework, the DHS Environmental Justice Strategy, and DHS Climate Change Mitigation Strategy and Sustainability Plans. Combined, these plans represent an enduring commitment to significantly reduce the Department's greenhouse gas emissions. The incorporation of resilience is particularly critical to the Department's continuity of operations as the Nation experiences increasing numbers of extreme events.[15]

[15] "An *extreme event* is a time and place in which weather, climate, or environmental conditions—such as temperature, precipitation, drought, or flooding—rank above a threshold value near the upper or lower ends of the

Climate change poses significant risks to the health and well-being of the Department's workforce. Heatwaves, raging wildfires, and extreme storms increasingly place DHS agents, officers, members of USCG, first responders, and law enforcement canines and horses in danger. As mosquitos, fleas, and ticks' habitat expands with the changing climate, our workforce is at greater risk of debilitating vector borne diseases such as Lyme disease and West Nile virus. In addition, climate change is driving some animals towards cooler climates affecting the other species they interact with, including humans, increasing the risk of a pandemic from zoonotic diseases.[16] The Department and its Components will deliberately include these elements, such as heat stress, in their operational risk management practices. The health and safety of our workforce is a top priority.

DHS Resilience in Practice

In 2018, the DHS Deputy Undersecretary for Management (DUSM) signed the DHS Resilience Framework; although it did not refer specifically to climate change, it did create a preliminary process for identifying, validating, or strengthening resilience measures for mission essential assets. This spurred the initial development of Component resilience plans throughout DHS, which focus on four broad infrastructure categories: energy and water, facilities, information and communication technology (ICT), and transportation.

Line of Effort 5: Develop a Climate Change-Informed DHS Workforce

Countering the many challenges and seizing the opportunities presented by climate change requires the Department to deepen its talent pool of scientific and technical experts. The Department will look to scientific agencies such as the National Ocean and Atmospheric Administration (NOAA) and NASA, as well as interagency bodies such the U.S. Global Change Research Program, for the most authoritative climate change science. However, DHS also needs scientists and engineers to translate that science into impacts for our Department and to support our efforts to find solutions. These professionals will develop a common picture of understanding that should be utilized across the Department by all Components. Decision-makers across DHS must understand the impacts of climate change on their mission space. Acquisition professionals, policy makers, and public engagement specialists are just a few of the professionals within the Department that will benefit from this work, and who will be better able to identify and address the challenges associated with climate change.

A department as vital to American resilience as DHS will require a diverse set of solutions as it builds scientific and climate change competency. In the near-term, we will explore shaping existing fellowships and advisory councils to recruit subject matter experts and scientists in climate change, mitigation, and adaptation. We will tailor the support the Department receives from federally funded research and development centers to fill knowledge gaps. In the long-term,

range of historical measurements. Though the threshold is subjective, some scientists define extreme events as those that occur in the highest or lowest 5% or 10% of historical measurements. Other times they describe events by how far they are from the mean, or by their recurrence interval or probability." (NOAA Climate Webpage)

[16] Coronavirus, Climate Change, and the Environment: A Conversation on COVID-19 with Dr. Aaron Bernstein, Director of Harvard Chan C-CHANGE, https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change/

DHS will consider exploring the creation of new hiring authorities and retention programs to recruit and retain climate change talent through both Department and Congressional action.

Conclusion and Implementation

This Framework is a living document. While its current iteration will drive the implementation of innovative near-term solutions and priority actions, DHS will couple that work with steadfast commitment and foresight. The implementation of the five lines of effort through the lens of the guiding principles will enable the Department to safeguard the homeland from the immediate impacts of climate change, while pursuing long-term solutions that support resilient, prosperous communities and protecting critical national security interests.

As new information becomes available, particularly through efforts such as the Department of Defense's Climate Risk Analysis, the National Intelligence Estimate on Climate Change, the IPCC Sixth Assessment Report, and the Fifth National Climate Assessment, we will incorporate the findings into DHS policies, strategies, and programs.

The application of this Framework, including the implementation of associated priority actions, will be coordinated and tracked through the DHS Climate Change Action Group (CCAG), which is co-chaired by the Under Secretary for Strategy, Policy, and Plans and the Secretary's Senior Counselor for Regulations. Leveraging the CCAG, Components will develop and provide regular updates to the Secretary on priority action items to implement this Framework. Each Component will also provide a quarterly update to the CCAG on climate change work in pursuit of the Department's strategic ends, including work on incorporating future environmental conditions into the strategy, policy, planning, and budget process and implementation of the DHS Climate Action Plan. As a complementary effort, DHS's Strategic Approach to Arctic Homeland Security Implementation Plan Initiatives will also inform the implementation of this Framework.

On an annual basis, the CCAG will deliver a comprehensive written report to the Secretary on the Department's progress on climate change actions, which will serve as the foundation of the Secretary's annual report to the White House as required by EO 14008.

Our country and the rest of the world have a shrinking window of opportunity to overcome the climate crisis. DHS is committed to contributing on every front – to mitigate climate change, to reduce the risks associated with it, and to prepare the Nation to adapt and remain resilient in the face of our rapidly changing climate.