

Testimony of Alice Hill

Prepared statement by

Alice Hill

*Senior Fellow for Climate Change
Council on Foreign Relations*

Before the

Senate Democrats' Special Committee on the Climate Crisis

United States Senate

1st Session, 116th Congress

Hearing on Climate Resilience: “Better, Stronger, Smarter: Building Community Resilience in a Future of Extremes”

Thank you, Chairman Schatz and Members of the Committee for inviting me to testify today. It is an honor to appear before you and I look forward to answering any questions you may have.

Natural disasters are on the rise. According to the Fourth National Climate Assessment, climate change has already brought more extreme weather and will bring greater extremes in the foreseeable future. The nation is expected to experience a range of climate impacts, including more intense storms, bigger wildfires, and greater temperature and precipitation extremes in the coming decades. Sea-level rise has accelerated since the 1990s and is projected to do so in the years ahead. Once in a century events, like heatwaves and floods, are occurring more frequently. Last year was the fourth warmest year in nearly 140 years of record-keeping in the United States. This year will conclude the warmest decade since record-keeping began.

The costs of weather and climate-related disasters are also rising. Between 1980 and 2018, the United States suffered 254 weather and climate-related disasters carrying a price tag of over \$1 billion each, according to the National Oceanic and Atmospheric Administration (NOAA). The total cost of these events is more than \$1.7 trillion. From 1980 to 2013, the nation averaged 6.3 such billion-dollar events per year. For the years from 2013 to 2018, however, the annual average leapt to 12.6 events. The Congressional Budget Office estimates that from just hurricane winds and storm-related flooding alone the nation can anticipate annual losses of \$54 billion.

When communities suffer devastation Americans respond with generosity. The Congress has increasingly authorized supplemental appropriations to provide relief to local and state governments overwhelmed by disasters, to small businesses and individuals who have suffered losses, and to repair damaged federal assets. According to the Government Accountability Office (GAO), between 2007 and 2013, federal appropriations for natural disasters increased 46 percent as compared to the previous six years. In just the last three years, supplemental appropriations for disasters has totaled \$183 billion. In light of the growing fiscal exposure to the federal government, the GAO has identified climate change as a “high risk” since 2013.

Because the authority to make decisions about where and how people build rests almost entirely with the states, and often with local governments, the federal government has comparatively little say in state and local choices about land use and construction quality. Yet, it is the federal government that frequently picks up the bill for those choices after disaster strikes. The growing propensity of the federal government to absorb the costs of disasters means that state and local governments, developers, and individuals can build in riskier areas and in ways that provide less protection because they believe the federal government will cover the damage when the disaster occurs. In other words, the federal government’s growing generosity to victims of disaster creates a “moral hazard”: communities and people place themselves at greater risk knowing that federal taxpayers will bail them out. In the face of accelerating climate change, the federal government must reduce the incentives for people to settle in at-risk areas and to build in risky ways.

The Fourth National Climate Assessment found that the nation’s efforts to date to prepare for climate change impacts have not yet reached the necessary scale to avoid substantial damage to the economy, environment, and human health. Investing in pre-disaster resilience would help plug the fiscal drain. According to a recently updated study conducted by the National Institute of Building Sciences, investment in risk mitigation can save an average of \$6 in damage for every \$1 spent. The National Disaster Recovery and Reform Act of 2018 significantly advances the federal government’s efforts to reduce risk pre-disaster by increasing the amount of funds available to invest in risk mitigation. More money, however, is still needed to help communities prepare.

In addition to providing financial assistance, the federal government could also significantly advance climate preparedness by providing technical assistance to help decision-makers understand the risks from climate-change, restricting federal investment in areas at high risk from climate impacts, ensuring use of resilient building codes, and supporting robust early warning systems. These four topics will be the focus of my remarks.

Technical assistance

As the recently released National Mitigation Strategy recommends, the government “should support nonfederal partners by providing guidance, useable tools, and resources.” Unfortunately, when it comes to climate change risk, the federal government has not done a very good job of that so far. The federal government generates enormous amounts of data and information concerning climate change. Yet, it still lacks adequate guidance, decision-making tools, and other resources to assist decision-makers responsible for determining risk mitigation choices in the face of accelerating climate impacts. The available resources are not often easily understood or even accessible to local decision-makers on the ground. As one part-time

mayor of a small town in Alabama, which faces risks of coastal erosion from sea-level rise and more intense hurricanes, lamented in 2014, “I don’t have a big planning staff, grant writers, or any resources. So how can I even know the size of the threats we are facing—and what can I do to protect the people of my town?” This mayor is not alone. Communities and businesses across the nation need help deciding how best to prepare for climate impacts. Doing so has the potential to save enormous amounts of money.

The federal government urgently needs to create a system for providing meaningful technical assistance to decision-makers. In 2015, the GAO concluded that the federal government’s network of climate data remains so disjointed that “decision-makers are vastly underserved.” Although decision-making tools and databases rest on numerous federal government websites, it is hard to imagine how busy local officials and small business owners can make sense of them without guidance as to their merits and applicability.

Similarly, the federal government supports various information hubs, including NOAA, the Department of Agriculture, the Department of the Interior, and the Federal Emergency Management Administration. This approach serves various constituencies but fails to provide a customer-centric approach. Those that wish to take advantage of the information must wade through the differing formats, locations, and approaches that each individual agency has chosen to pursue. As the GAO recently noted, because of this uncoordinated approach, “federal, states, local, and private sector decision-makers may be unaware that climate information exists or may be unable to use what is available.”

One critical link for understanding risk is making it easy for decision-makers to understand what is at risk and why. Mapping areas at heightened risk from climate impacts could aid in this process. The federal government needs to provide comprehensive risk maps that include future risk from climate change. That means mounting an immediate concerted effort to create flood and wildfire maps that are updated on a regular basis. Having clear assessments of risk readily available should improve local decision-making and better protect federal investments. Where areas are at high risk from climate impacts like wildfire and flooding, the federal government should restrict its investment in new development in those areas and post-disaster assistance.

The lack of readily available authoritative and actionable information has meant that in many locations and settings, adaptation efforts are stalling. Making climate information easy to obtain and understood would accelerate the updating of building codes, the revising of zoning maps, improve engineering and architectural design, speed revision of cost/benefit analysis, and shore-up supply chains. In the absence of current federal leadership in this area, attempts have been made by other entities to fill the void, including a civil-society-based network for assessing, sharing, and supporting applications of climate science called Science for Climate Action Network (SCAN) (for which I serve as an advisor). However, these efforts alone cannot possibly address the increasing demands for actionable information from across the nation. This should be a core function of the federal government. In the longer term, the federal government needs to develop comprehensive climate services to support local planning and investment.

Resilient building codes

Building codes reduce risk of damage. According to the 2019 Edition of the ISO National Building Code Assessment Report, Florida’s implementation of a statewide windstorm building code reduced losses by approximately 72 percent. Effective building codes also “have a strong positive effect on disaster preparation and resilience,” as the recently released National Mitigation Strategy noted. A 2018 study by

the National Institute of Building Sciences (NIBS) found that designing buildings to meet the latest model building codes yields a national benefit of \$11 for every \$1 invested. In light of the proven value of building codes in reducing damage, the federal government must insist on compliance with resilient building codes where federal taxpayer money underwrites construction.

The United States does not have a national building code. Instead, non-governmental organizations, develop model codes and revise them periodically. The decision as to whether and which model building codes to adopt rests with states and, in many instances, local jurisdictions. Despite the case for strong building codes, however, the Federal Emergency Management Administration estimates that only 32 percent of disaster-prone jurisdictions have adopted disaster-resistant building codes. That means that close to 70 percent of disaster-prone jurisdictions are at greater risk of damage, damage for which the federal government will often be called upon to pay. The federal government must require state and local jurisdictions to use the latest model building codes when building with federal money, either pre- or post-disaster. Enforcing requirements to adopt and comply with the most recent model codes would save the federal Treasury substantial funds and spare local communities unnecessary damage.

Notably, virtually none of the current model codes, however, yet incorporate consideration of the future risk of climate change. Rather, they rely on historical risk to determine the extremes which structures should withstand. The nation urgently needs model codes that account for the future risk from climate change impacts over the life of a structure. Estimates for when the building code organizations will have developed such codes range to as long as decade. The nation cannot afford to wait that long. As those model codes are in the process of development, the federal government should create its own climate-resilient code for two of the most damaging impacts from climate change—wildfire and flood. Those codes would apply to construction where federal taxpayer dollars are used.

The federal government already has experience with creating climate-resilient codes. Because no model code for climate-exacerbated flooding exists in the United States, the Obama administration, in the wake of Superstorm Sandy and based on the recommendation of the Hurricane Sandy Rebuilding Task Force, developed the first national flood standard, the Federal Flood Risk Management Standard (FFRMS). The FFRMS required that where federal taxpayer money was used to build structures in or near flood plains, those structures had to be elevated to avoid future climate-exacerbated flooding. Ten days before Hurricane Harvey poured approximately four feet of rain on the Houston area causing record flooding, President Trump rescinded the order creating the FFRMS. With the FFRMS, the federal government proved it was capable of producing such standards quickly and efficiently. The nation needs to take advantage of that capacity.

Restricting federal investment in at-risk areas

Restricting new development in at-risk areas would help drive better decision-making and further reduce risk. The federal government should have as its goal to spend taxpayer dollars resiliently. A good place to start is to stop using taxpayer dollars to support new development in high risk areas.

There is abundant evidence that people are moving into high risk areas. People like to live along our coasts—40 percent of Americans now live in a coastal county—and alongside rivers and streams. These areas face growing flooding risks from climate change, be it more intense storms bringing higher storm surge, sea-

level rise, or extreme precipitation, or all of the above. For example, in the state of New Jersey, developers have built almost three times as much housing in coastal flood areas as in less risky areas since 2009. Yet the seas are rising. An estimated 360,000 homes are at risk of permanent inundation by 2050 and 3.4 million homes nationwide could face regular inundation by 2100. People also like to live near forests and grasslands, or what is known as the Wildland-Urban-Interface (WUI), areas. Although living in the WUI often carries a higher fire risk, it is the fastest growing land-use type in the United States. For example, the state of California has more people and property located in the WUI than all the other states combined. It has close to 4.5 million homes and 11 million people in the WUI. Yet, according to the state's own climate assessment, the areas burned by wildfire are expected to grow by 77% by 2100.

Despite the increasing risk, the federal government continues to subsidize new development in high risk areas through the National Flood Insurance Program and other federal programs, including federally backed mortgages, small business loans, and other subsidies. Going forward the federal government should no longer provide incentives for people to put themselves and their businesses in place of known and growing risk.

The federal government has already acted, albeit in a limited way, to restrict federal subsidies for development in risky areas. In the 1970s and 1980s, Congress realized that the federal government's support of development on high-risk coastal barriers did not make economic sense. The Coastal Barrier Resources Act of 1982 (CBRA) makes certain areas ineligible for federal investments and financial assistance which would encourage development in designated areas. This means that those who want to live and invest in those areas bear the full cost of development and rebuilding after a disaster. According to one Department of Interior Study from 2002, the estimated savings to the federal government would reach almost \$1.3 billion from 1983 to 2010. This legislation could serve as a model for restricting support for new development in other at-risk area in the United States. At a minimum, the federal government should not provide financial support for new development in at-risk areas.

Invest in early warning

It is estimated that early warning systems not only save lives but also assets worth at least ten times the cost of such systems. With just twenty-four hours warning, the damage from a heat wave or gathering storm can be reduced by almost a third, according to the Global Commission on Adaptation. State and local governments need to increase investments in early warning systems. The design of those systems must incorporate the latest research on how to increase the likelihood that people will respond to the warnings. Emergency managers all too often discover that warnings do not persuade some people at risk to evacuate, even when those people receive warnings that the direst of storms is approaching. State and local government officials must also ensure that the warnings they issue actually reach those who need to receive them. During the deadly Camp Fire in Paradise, California in 2018, in which eighty-eight people died, emergency phone calls failed to reach more than a third of even the minority of residents who had signed up to receive them.

As climate impacts worsen, early-warning systems are an essential tool for reducing risk. The federal government should support the necessary social-science research to better understand the efficacy of warnings and provide monetary assistance to help state and local governments develop and maintain robust early warning programs for all hazards.

Conclusion

The federal government can act to help reduce losses from weather and climate-related disasters. Given the projected magnitude of climate change and the time it takes to adapt, taking steps now to prepare could avoid far more costly measures in the future. This important work should begin with helping communities, business, and individuals to better understand the risks they face from climate change; requiring resilient building practices; restricting access to federal taxpayer dollars for new development in areas at risk from climate impacts; and supporting development of robust early warning systems.