

Joint Statement for the Record

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“Extreme Weather Events: The Cost of Not Being Prepared”

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Thank you, Chairman Carper, Ranking Member Coburn, and distinguished Members of the Committee. It is a pleasure to appear before you today to discuss an issue of fundamental significance to the Department of Homeland Security and the Nation—resilience.

The Department of Homeland Security (DHS) is responsible for providing the coordinated, comprehensive federal response in the event of a terrorist attack, natural disaster or other large-scale emergency while working with federal, state, local, tribal, territorial and private sector partners to ensure a swift and effective recovery effort. This includes preparing for threats to critical infrastructure from extreme weather, often exacerbated by climate change, and responding to threats to critical infrastructure from extreme weather, often exacerbated by climate change, and other natural hazards.

Weather events present a significant and growing challenge, as evidenced by multiple multi-billion dollar disasters occurring in recent years. Trends such as the impacts of climate change, the vulnerability of aging infrastructure, and increasing population density in high-risk areas increase the risk of disasters. Natural disasters not only have the potential to cause severe consequences, including fatalities and economic loss, but also may overwhelm the capacities of critical infrastructure, causing widespread disruption of essential services across the country. Additionally, higher temperatures and more intense storms may damage or disrupt telecommunications and power systems, creating challenges for telecommunications infrastructure, emergency communications, and the availability of cyber systems.

Evolution of Resilience

On May 26, 2009, President Obama announced his intent to combine the staffs supporting the Homeland Security Council and National Security Council into a single structure. Under this decision, President Obama decided that new organizational positions would be established within the National Security Council structure and he assigned responsibilities for resilience policy, including preparedness and response, to a new *Resilience Directorate*. The Resilience Directorate would lead the Domestic Resilience Group which would operate alongside the Counterterrorism Directorate and the Counterterrorism Security Group, putting security and resilience as the principal pillars of homeland security.

A year later, the Department of Homeland Security (DHS) published the Nation's first Quadrennial Homeland Security Review (QHSR)—a document that set the strategic direction of the nation in homeland security. In it, DHS defined *security* and *resilience* as the principal foundations of homeland security, mirroring the working arms of the National Security Staff (NSS). The Department also established “ensuring resilience to disasters” as one of its five primary missions.

The term ‘resilience’ had not been formally defined by the Federal government. In the March 2011 Presidential Policy Directive 8: National Preparedness (PPD-8), the Federal Government defined resilience as the “ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.” In practice, this means something much greater that affects Americans and is inherently tied to the security of our homeland. Resilience is the ability of citizens, businesses, and communities to: 1) proactively prepare for potential disasters so as to ensure that they are well-positioned to weather the impact; and 2) readily respond to a situation as it occurs to mitigate the threat or hazard.

In September 2011, the National Preparedness Goal (NPG) was published, which defines what it means for the United States to be prepared for all types of disasters and emergencies. Under the NPG, there are 31 core capabilities across prevention, protection, mitigation, response, and recovery mission areas. The NPG is followed by the National Planning Frameworks that describe the roles and responsibilities of everyone and how we come together to prevent, protect against, mitigate, respond, and recover from emergencies in order to ensure a secure and resilient Nation. Working with interagency partners, the Federal Emergency Management Agency (FEMA) PPD-8 Program Executive Office oversaw development of the Frameworks with state, local, tribal, territorial, and Federal partners and the private and non-profit sectors. In August 2013, FEMA released the [*Comprehensive Preparedness Guide 201, Second Edition*](#), which provides communities with guidance for conducting a Threat and Hazard Identification and Risk Assessment (THIRA). The THIRA helps communities develop an understanding of risks from natural, technological, and human-caused threats and hazards. In this way, communities can make informed decisions on how to manage risk and develop needed capabilities. Finally, DHS is shepherding with Federal partners the development of a National Campaign to Build and Sustain Preparedness. The initiative will ultimately have four key elements: 1) a comprehensive campaign including public outreach, and community-based and private-sector programs;

2) federal preparedness efforts; 3) grants, technical assistance and other federal preparedness support; and 4) research and development.

As PPD-8 implementation evolved, the Administration heightened its focus on critical infrastructure security and resilience. While the policies and framework to build national preparedness and resilience are led by the Federal Government, the implementation and ability to be more prepared and resilient as a Nation, ultimately require partnerships and efforts across all of society—from individuals and first responders, to businesses, local governments and communities, all working together. And one year ago today, President Obama issued two policy documents which directly address the need for resilience in critical infrastructure. Presidential Policy Directive 21: *Critical Infrastructure Security and Resilience* (PPD-21) and Executive Order 13636, *Improving Critical Infrastructure Cybersecurity*, highlight the need to augment physical protective measures with additional emphasis on securing and strengthening the resilience of inter-related systems. PPD-21 directed DHS to develop an update to the National Infrastructure Protection Plan (NIPP), which was released in December 2013. The NIPP establishes the framework for integrating the various critical infrastructure security and resilience initiatives into a coordinated effort. The NIPP provides the structure through which DHS, in partnership with government and industry, implements programs and activities to protect critical infrastructure, promote national preparedness, and enhance incident response. The updated NIPP envisions a Nation in which physical and cyber critical infrastructure remain secure and resilient; essential services and products continue to be delivered in the face of incidents; and communities and businesses adapt to changing conditions and withstand and rapidly recover from potential disruptions.

Why Resilience is Important to Homeland Security

The Nation's critical infrastructure provides the essential services that underpin the American way of life. A vast array of interdependent infrastructure and information technology networks, systems, services, and resources enable communication, facilitate travel, power our homes, run our economy, and provide essential government services. The aging or deteriorating condition of significant parts of these systems, however, both weaken our resilience and negatively affect our nation's security and prosperity. These challenges present significant obstacles to performing DHS's missions, particularly during times of disaster. The projected impacts of climate change, including sea level rise and increasing severity and frequency of extreme weather events, can cause damage or disruptions that result in cascading effects across our communities, with immeasurable costs in lives lost and billions of dollars in property damage.

Hurricane Sandy is a vivid example of the potentially devastating impacts extreme weather can have on critical infrastructure. The storm surge and associated flooding from Sandy caused widespread and catastrophic damage across New York, New Jersey, and surrounding areas, amassing approximately \$65 billion in damages.¹ Communications, energy, transportation, healthcare, water, and wastewater systems were inoperable or

¹ According to NOAA, the 2013 Consumer Price Index (CPI) cost adjusted value of Hurricane Sandy was \$65.7 billion. <http://www.ncdc.noaa.gov/billions/events>

severely degraded for weeks and months following the storm. The storm affected critical infrastructure in unprecedented and unexpected ways, demonstrating how interdependencies between infrastructure systems can magnify impacts and delay restoration, and underscoring how pre-planning, coordination, and improved design and construction approaches can ease effects.

Additionally, the increasingly integral role of cyber and communications networks creates new vulnerabilities and opportunities for disruption. Communications and information technology networks enable automated switching and distribution SCADA (supervisory control and data acquisition) systems in order to provide utilities with enhanced capabilities for remote monitoring and the ability to proactively address outages. Two years ago, high temperatures and high demand tripped a transformer and transmission line in Yuma, AZ, starting a chain of events that shut down the San Onofre nuclear power plant, leading to a large-scale power outage across the entire San Diego distribution system. While strides have been made to address the vulnerabilities that led to such outages, additional progress is needed to secure our interrelated systems in the face of varied threats.

DHS Resilience Operations

Establishing resilience in doctrine, while important, is separate from the task of establishing resilience in daily operations. FEMA, the National Protection and Programs Directorate (NPPD), Science & Technology Directorate (S&T), Office of Health Affairs (OHA), and the Office of Policy (PLCY)—are the DHS components most heavily involved in the development or execution of programs to build national resilience. In FY 2013, the Department allocated approximately \$16.1 billion for programs and activities with a nexus to the Resilience Mission.

Role of NPPD

DHS supports private sector owners and operators of critical infrastructure in preparing for, preventing, protecting against, mitigating, responding to, and recovering from incidents that affect their infrastructure. NPPD is responsible for leading and coordinating the national effort to protect critical infrastructure from all hazards by managing risk and enhancing resilience through collaboration with the critical infrastructure community. To achieve this end, NPPD's Office of Infrastructure Protection (IP) works with public and private sector partners to identify and promote effective solutions for security and resilience to manage the evolving risk environment.

Because the majority of the Nation's infrastructure is owned and operated by the private sector, NPPD works with owners and operators, primarily on a voluntary basis, to understand evolving threats, share information on these threats and hazards, and promote best practices, training, and tools to help mitigate risks. By leveraging its core capabilities, such as information and data sharing, capacity development, vulnerability assessments, and situational awareness, NPPD is effectively using its skills and resources to assist with building the Nation's resilience to extreme weather and cybersecurity risks.

As a part of the Hurricane Sandy Rebuilding Taskforce, NPPD-IP and other Federal partners worked to develop the Infrastructure Resilience Guidelines, which are sound investment principles to guide Federal infrastructure investment following a disaster. Included in the Guidelines is the concept that certain core approaches—incorporating changing climate and development patterns, making risk-based decisions, and evaluating approaches and techniques throughout the project lifecycle—will help encourage investment in more resilient infrastructure.

Additionally, IP co-chairs the new Infrastructure Resilience Work Group with the Department of Energy under the White House-led Council on Climate Preparedness and Resilience. The purpose of this working group is to develop, recommend, and coordinate interagency efforts on climate preparedness and resilience for the Nation's infrastructure, and to track implementation of interagency actions, including those in the President's Climate Action Plan and Executive Order 13653, "Preparing the United States for the Impacts of Climate Change." IP's responsibilities include leading an effort to study infrastructure most vulnerable to climate impacts throughout the United States and identifying risk-based hazard mitigation and adaptation strategies. This will inform and aid the critical infrastructure community with planning and decision making regarding climate preparedness and resilience.

Furthermore, IP's Regional Resiliency Assessment Program (RRAP) examines a particular industry, region, or municipality's dependence on key lifeline sectors and the hazards and vulnerabilities that can affect the functioning of the complex systems of infrastructure that underpin the selected region's communities. RRAPs already collect data regarding natural hazard risks to infrastructure assets. Each year, IP conducts a series of RRAPs focused on different topics and has created a comprehensive library of actions that owners, operators, and state, local, tribal, and territorial partners can take to prevent an incident from occurring and mitigate consequences from any incident that does occur.

Role of FEMA

FEMA is often the Department lead and public face of resilience initiatives, leading implementation of National Preparedness (PPD-8) on behalf of DHS and the Nation. PPD-8 aims to strengthen the security and resilience of the United States through the systematic preparation for the threats and hazards that pose the greatest risk to the Nation. It also focuses on an integrated all-of-Nation, capabilities-based approach to preparedness—including all levels of government, private and nonprofit sectors, faith-based organizations, communities, and individuals.

Operationally, FEMA takes a *Whole Community* approach to emergency management. A Whole Community approach is based on the notion that FEMA is only one part of our nation's emergency management team; that we must leverage all of the resources of our collective team in preparing for, protecting against, responding to, recovering from and mitigating against all hazards; and that collectively we must meet the needs of the entire community in each of these areas. This larger collective emergency management team includes not only FEMA and its partners at the federal level, but also local, tribal, state and territorial partners; non-governmental organizations like faith-based and non-profit

groups and private sector industry; and individuals, families and communities, who continue to be the Nation's most important assets as first responders during a disaster. Both the composition of the community and the individual needs of community members, including factors such as age, economics, and accessibility requirements, must be accounted for when planning and implementing disaster strategies.

FEMA helps build community resilience through its grants to state local, tribal, and territorial governments, urban areas, the private sector and non-profit agencies. Since 2002, more than \$38 billion in preparedness grant funding has been awarded to Whole Community partners. FEMA funding supported the development and training of the New York City Fire Department's Incident Management Team, which was activated to support Hurricane Sandy to help manage homebound evacuations, provide for fire and life safety, and manage tree removal and dewatering operations. FEMA also funded Oklahoma Task Force One, which conducted search and rescue operations at two schools, as well as businesses and homes, following the tornado in Moore, Oklahoma in May 2013. Additionally, FEMA, in partnership with the Rockefeller Foundation, created the Community Resilience Innovation Challenge to build local resilience in communities across the United States; FEMA announced 30 grant recipients for this program in May 2013, with applications open to state, local, tribal, and territorial governments, businesses, associations, and community groups.

Internationally, FEMA established the Multinational Resilience Policy Group—a partnership of Australia, Canada, Italy, Germany, the Netherlands, New Zealand, Singapore, Sweden, the United Kingdom, and the United States to identify, collect, analyze, and share policy insights from countries' respective experiences and perspectives.

Over the next several years, DHS, working with the National Academies, will convene a roundtable of experts from the academic, public, and private sectors to design or catalyze activities that build resilience to extreme events. The roundtable will provide the venue for current research, science, and evidence-based foundations to inform whole community strategies for building resilience.

FEMA is making great progress in building national preparedness and resilience. However, one FEMA tool—the National Flood Insurance Program (NFIP), which provides flood insurance protection to property owners in exchange for local government floodplain management activities—is in debt \$24 billion. This is due to spiraling costs and increasing payouts, particularly as events are becoming more extreme. This underscores the fiscal impact that severe weather is having on the U.S. According to the U.S. Global Change Research Program, future impacts of climate change project national economic losses on the order of \$1.2 trillion through 2050.

Role of the Science and Technology Directorate

S&T is the primary research and development arm of the Department. S&T's Resilient Systems Division develops technology capabilities to enhance the Nation's resilience in the face of evolving risks with increasingly costly impacts such as natural disasters as well as industrial accidents in the cyber and physical arenas. For example, S&T's Resilient

Electrical Grid project is developing new solutions to ensure reliability and availability of services in times of disaster. S&T has also developed a set of modeling and simulation solutions to enable rapid assessment of the implications of natural hazards for planning, response, and recovery operations. These solutions provide a unique capability that will help the Department understand the impacts of climate change on critical infrastructure, so hazard mitigation strategies can be planned and implemented in both the short and long term.

Since December of 2010, S&T has facilitated the Virtual Social Media Working Group (VSMWG), a working group comprised of several local, state, federal, academic, and non-profit stakeholders. The VSMWG meets monthly to discuss various challenges and engages with the public safety community on an ongoing basis to develop and provide assistance, and guidance to the emergency preparedness and response community on the safe and sustainable use of social media technologies before, during, and after emergencies. In July of 2013, the VSMWG published *Lessons Learned: Social Media and Hurricane Sandy*², a landscape analysis of how social media was used in preparation for, in response to, and in recovery from Hurricane Sandy in October of 2012. The report, which includes discussion and examples of various processes, themes in application, lessons learned, and identifies gaps in technology, process, and policy requiring further discussion, has been shared as an essential resource across the public safety community; it helps to inform future development of new technologies and processes necessary to achieve and maintain resilience against future events.

Role of the Office of Health Affairs

OHA coordinates all medical activities within the Department to ensure appropriate preparation for and response to incidents. OHA also serves as the principal advisor to the Secretary and FEMA Administrator on medical and public health issues. OHA's Community Health Resilience Initiative is a partnership of public and private partners to strengthen resilience-related health initiatives across the Nation. A web-based toolset is currently in development and will provide planning guidance for communities to improve health resilience. OHA works closely with our Health and Human Services (HHS) partners to ensure integration of health resilience activities. The initiative incorporates climate change considerations.

Role of DHS Office of Policy

DHS PLCY facilitates the coordination of resilience activities across the Department, while assessing and incubating efforts that will help strengthen the execution of the Resilience Mission and our Nation's ability to withstand disasters. In 2010, PLCY established and currently leads the Department's Resilience Integration Team (RIT)—a team of resilience experts from across DHS components. The RIT was formed for the principal purpose of

² DHS Science and Technology Directorate, First Responders Group, Virtual Social Media Working Group (VSMWG). *Lessons Learned: Social Media and Hurricane Sandy*; June, 2013. https://communities.firstresponder.gov/DHS_VSMWG_Lessons_Learned_Social_Media_and_Hurricane_Sandy_Fomatted_June_2013_FINAL.pdf, accessed February 6, 2014.

turning resilience concepts into action, following the publication of the 2010 QHSR and establishment of Resilience as a key homeland security mission.

Through the RIT, the Department has developed and launched two key Departmental resilience initiatives: *the Rick Rescorla National Award for Resilience* and the Resilience STAR™ Home Pilot.

- *The Rick Rescorla National Award for Resilience*, named after fallen 9/11 hero Rick Rescorla, recognizes local and national leadership in preparedness and resilience by organizations and individuals, as a means of both catalyzing and inspiring a culture of resilience across America. The 2013 recipients, announced this past December, were recognized for exemplary activities of leadership with respect to preparedness, response, and recovery in the face of one of the Nation's most devastating storms, Hurricane Sandy.
- Resilience STAR™, modeled after the Environmental Protection Agency's successful ENERGY STAR™ program is a partnership between DHS and the Insurance Institute for Business and Home Safety to designate homes that are built to "code-plus" standards as "Resilience STAR compliant." Homes built to these standards will incur significantly less property damage caused by natural disasters, protecting lives, livelihoods, and a community's ability to withstand and recover from disasters. Resilience STAR™ seeks to identify the business case and return on investment for building resilient homes in order to encourage consumers and businesses to consider the benefits of building resilience into the construction (or retrofitting) of their homes. Ultimately, DHS aims to extend Resilience STAR™ beyond homes and facilities, and into critical infrastructure, helping to recapitalize the built environment across America in the long term, one home, one building and one bridge or critical asset at a time.

These initiatives serve as key tools that the Department may use to incentivize and encourage individuals and communities to build resilience concepts into their lives and business practices.

Further, PLCY leads the "One DHS" effort on climate adaptation – a Departmental initiative to ensure DHS missions appropriately account for climate risk as well as programs for key external stakeholders. In September 2013, then-Secretary Napolitano signed the DHS Climate Action Plan, which aligns to and implements the vision of The President's Climate Action Plan. PLCY chairs both the executive-level and program manager-level bodies that regularly meet to ensure implementation. There are 36 actions in all, intended to help state and local governments, private sector owners and operators of infrastructure and individuals across the U.S. be climate prepared.

Mitigating Costs through Infrastructure Resilience

The U.S. Government can neither predict nor protect against all threats or hazards. And we know that the benefits of investing in resilience, such as building and design, for example, are significant. In 2005, the Multi-hazard Mitigation Council conducted an independent, congressionally-mandated study that determined that for every federal dollar spent on

mitigation, American society saves an average of four dollars post-disaster.³ This figure is likely multiplied when factoring in state, local, territorial, and tribal government, private sector, and individual investments.

With changing climate and development patterns and the severity and frequency of extreme weather events increasing, the U.S. cannot afford to leave homes, communities, and critical infrastructure vulnerable. There was a record 98 Presidentially-declared disasters in FY 2011 alone. According to Munich Re, the world's largest risk reinsurer, weather related catastrophes struck North America hardest from 1980-2010 compared to the rest of the world. Total economic losses to the United States were approximately \$1.15 trillion during that period.⁴ Without a concerted national resilience effort, the trend is likely to continue. Intergovernmental agencies and the scientific community, such as the Intergovernmental Panel on Climate Change and the U.S. Global Change Research Program, warn that extreme weather may occur with increasing frequency. The effort must be national as extreme weather events take on many forms affecting various regions of the country. This includes: massive flooding, excessively high temperatures, an increase in wildfires, more severe downpours and conversely more severe droughts, increased storm surge and sea-level rise.

Infrastructure built now can have a design life span of 50 years or more, and will be expected to operate under future stressor conditions, whatever they may be. As a result, it is a prudent investment to incorporate resilience into asset and system design and promote hazard mitigation in built infrastructure, rather than rebuild or redesign infrastructure after incidents occur.

To achieve infrastructure resilience, owners and operators along with government and nongovernmental partners must be able to maintain essential services provided by critical infrastructure to our communities regardless of the hazard or threat, and when a disruption occurs, ensure essential services and functions are brought back to full operations as quickly as possible. To accomplish this, DHS is leveraging a whole community, all-hazards approach to better prepare for, protect against, mitigate, respond, and recover from extreme weather.

A Shared Responsibility: The Importance of Community and Individual Resilience and Preparedness

The Department also recognizes the importance of building national resilience from the ground up. Building resilience is not simply about government action alone, but rather about the collective strength of this entire country. That effort and that strength begins with individuals—private citizens taking the initiative to be prepared.

Civilians are usually the first to arrive in a crisis, and history shows that they are critical in those important first minutes. In order to maximize their ability to help themselves, their

³ *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities* (2005). http://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/MMC/hms_vol1.pdf

⁴ See generally The Munich Re Report, summary available at http://www.munichre.com/en/media_relations/press_releases/2012/2012_10_17_press_release.aspx.

communities, and the U.S. Government respond to and mitigate threats, we must ensure that they are well-equipped and understand the importance of preparing for and responding to disasters. Citizen responders have the capacity to act as force multipliers and can be an even more potent force if they know what steps they can take to prepare.

America's PrepareAthon! is a nationwide, community-based campaign for action to increase emergency preparedness and resilience. Twice yearly, in the spring and fall, America's PrepareAthon! will provide a national focus for individuals, organizations and communities to participate through drills, group discussions and exercises to practice for local hazards

The Department's **Ready.gov** website serves as a resource for citizens, outlining ways that citizens can stay informed, make appropriate plans, build kits, and get involved in their communities. Some of these steps include:

- Taking CPR training and joining or initiating community planning and response teams;
- Training with a Community Emergency Response Team to learn basic disaster response skills to employ when professional responders are not immediately available; skills include: fire safety, light search and rescue, disaster medical operations, and team organization;
- Understanding under what circumstances they should take shelter or evacuate;
- Assembling an emergency "go kit" to take during an evacuation and what emergency supplies to maintain at home to be able to shelter-in-place without outside assistance for at least three days;
- Pre-planning evacuation routes and where to meet family after a disaster strikes.

By taking these simple steps, citizens are not only prepared should disaster strike, but their actions also enable first responders and emergency personnel to focus on those most in need.

One of our closest federal partners – the National Oceanic and Atmospheric Administration (NOAA) – has set a strategic goal to build a "Weather-Ready Nation" to increase the resilience of the American people in the face of growing exposure to dangerous weather and water events. Over the past two years, this strategic goal has grown into a campaign that involves both the public and private sectors.

In the end, resilience is a shared responsibility that requires individual citizens, communities, and government to take critical steps to be prepared when disaster strikes, and to work together to ensure we are well-equipped to withstand whatever threats and hazards we may face. It is imperative that DHS do everything we can to ensure that individuals, businesses, and communities understand their responsibility to prepare themselves, have the tools at their disposal to do so, and understand the impact they can have on their community. It is in the actions of each of us, that we ensure the safety and security of all of us.

Closing

The Department of Homeland Security is committed to the important mission of resilience. By encouraging a culture and practice of resilience among citizens, and by building resilience into homes, communities, and critical infrastructure, we can better protect the lives and livelihoods of Americans, while ensuring that the costs associated with disaster recovery are markedly diminished.

Thank you for the opportunity to appear before this Committee. We look forward to answering any questions you may have.