Statement for the Record

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"Examining DHS' Misplaced Focus on Climate Change"

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Thank you, Chairman Perry, Ranking Member Watson Coleman, and other distinguished Members of the Subcommittee. I appreciate the opportunity to appear before you to discuss the National Protection and Programs Directorate's (NPPD's) efforts to secure the Nation's critical infrastructure and make it more resilient against all risks.

Our daily life, economic vitality, and national security depend on critical infrastructure. Infrastructure provides essential services; it is the engine of commerce, the basis of trade, the key to functioning communities, but it is easily taken for granted. Often, it is only when an incident occurs—leading to a disruption in services we have come to expect—that most peoples' attention is drawn to the importance of infrastructure itself.

Threats to our critical infrastructure are wide-ranging—including acts of terrorism, cyber threats, aging and failing infrastructure components, and climate change. The Department of Homeland Security supports the preparedness efforts of owners and operators to prevent, protect against, mitigate, respond to, and recover from incidents affecting critical 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 works with the Nation's owners and operators of critical infrastructure as well as the communities that rely on that infrastructure to address all risks as part of our all-hazards approach to building critical infrastructure security and resilience.

Climate Change Threatens our Nation's Security

According to the U.S. Global Change Research Program's Third National Climate Assessment released last year, the United States will experience an increase in frequency and intensity of hurricanes, massive flooding, excessively high temperatures, wildfires, severe downpours, severe droughts, storm surge, and sea-level rise throughout the 21st Century. Extreme weather strains our resources, serves as a "threat multiplier" that aggravates stressors both at home and abroad, and destabilizes the lifeline sectors on which we rely. Higher temperatures and more intense storms can cause damage or disruptions that result in cascading effects across our communities.

Critical infrastructure is subject to a wide variety of natural phenomena, and is typically designed to withstand the weather-related stressors of a particular locality. But shifts in climate patterns increase the range and intensity of potential risks to our critical infrastructure. Most infrastructure being built today is expected to operate for 50 years or longer. Therefore, it is important to understand how climate change might affect these investments now and in the coming decades so that what we build today will withstand the hazards of the future. This requires forward planning that considers the risks and uncertainties associated with climate change, rather than reliance on models solely based on the past. It also means building awareness of how depletion or alteration of natural resources may impact infrastructure operations.

Over the past few years, we have seen how extreme weather can compromise critical infrastructure, often for extended periods of time. In 2012, Hurricane Sandy flooded shorelines and subways, resulting in billions of dollars of damage, leaving tens of thousands of individuals without transportation or power, and most significantly, resulting in loss of life. Storms like Sandy and Hurricane Katrina remain a primary concern for significant regions of the country. so too, however, do more localized incidents such as the derecho we faced in the Mid-Atlantic in 2012; tornadoes in the Oklahoma region; and, more recently, the significant riverine flooding in the State of Texas. The impact of drought conditions in California and the rest of the Southwest is currently stressing the ability of our infrastructure to operate and threatening the water supply and, ultimately, the related electricity and fuel supply.

Unfortunately, we do not anticipate this trend abating. The analysis of infrastructure exposure to extreme weather events we have conducted shows that rising sea levels, more severe storms, extreme and prolonged drought conditions, and severe flooding combine to threaten the infrastructure that provides essential services to the American public. Ongoing and future changes to the climate have the potential to compound these risks and have a major impact on infrastructure operations.

There are a number of examples of the risk of delays, disruptions, damage, and failure that the projected impacts of climate change pose to our critical infrastructure systems. Many of the Nation's busiest air and sea ports are located in low-lying coastal areas, making them particularly vulnerable to flooding as a result of rising sea levels. In the tri-state area of New York, New Jersey, and Connecticut, many transportation infrastructure facilities (including Newark and LaGuardia airports) lie within the range of current and projected 50-year coastal storm surges. In the Gulf Coast—home to several of the largest ports in the United States—the combination of relative sea level rise and more intense hurricanes and tropical storms could lead to significant disruptions and damage.[1]

In addition, the increasingly interconnected nature of our critical infrastructure creates new vulnerabilities and opportunities for disruption across supply chains. Three years ago, high temperatures and high demand tripped a transformer and transmission line in Yuma, Arizona, 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. Efforts have been made to address the vulnerabilities that led to such outages, including enabling automated switching and distribution SCADA (supervisory control and data acquisition) systems to provide utilities

[1] USGCRP (2009). *Global Climate Change Impacts in the United States*. Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). United States Global Change Research Program. Cambridge University Press, New York, NY, USA.

with enhanced capabilities for remote monitoring, and the ability to proactively address outages. However, additional progress is needed to secure our interrelated systems in the face of varied threats.[2]

These examples reinforce that the Nation must take a long-term perspective and account not only for risks based on previous experiences, but also consider evolving threats and hazards, including those caused by extreme weather that are linked to change in climate. Intergovernmental agencies and the scientific community, including the Intergovernmental Panel on Climate Change and the U.S. Global Change Research Program, warn that extreme weather may occur with increasing frequency. While it is always wise to consider future conditions, it is even more important for critical infrastructure. Infrastructure built now 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 mitigation in existing infrastructure, rather than rebuild or redesign infrastructure after incidents occur.

DHS Actions to Ensure the Threat of Climate Change is Appropriately Addressed

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 manmade threats and natural hazards, to share information on these threats and hazards, and promote best practices, training, and tools to help mitigate risks. By leveraging our core capabilities, such as information and data sharing, capacity development, vulnerability assessments, and situational awareness, NPPD is effectively using its skills and resources to build the Nation's resilience to extreme weather. Specifically, let me highlight two community-level engagements:

- In Charleston, SC, we are partnering with the newly formed Charleston Resilience Network to help the region address chronic and long-term hazards. We know from our work that the Charleston downtown area floods during periods of heavy rain and/or high tide. Within two hours of high tide, much of the storm water infrastructure fills with seawater, inhibiting drainage of storm water. When high tide and a storm converge, downtown Charleston begins to flood. Couple that with the fact that the average seasonal rainfall is projected to increase 1 to 1.5 inches over the next 35 years, and the continued prevalence of heavy, 24-hour rainfall events in the region, and we can predict with fair certainty that Charleston will experience chronic flooding. Rather than waiting for the next flood to occur, Charleston is proactively building a resilient community. They are improving their storm water management systems, and now, based on the work we performed in the area, they have launched a public-private partnership to address chronic and episodic hazards.

- In the Casco Bay region of Maine, NPPD recently conducted a Regional Resilience Assessment Program (RRAP) focused on climate change. This year-long program which included workshops, assessments, open-source research, and subject matter expertise interviews with federal, state and local officials as well as

[2] Technical Report to the U.S. Department of Energy in Support or the National Climate Assessment (February 2012). *Climate Change and Infrastructure, Urban Systems, and Vulnerabilities*. Oak Ridge National Laboratory.

> critical infrastructure operators helped the community identify areas of risk associated with the impacts of climate change. The assessment culminated in a table top exercise, the first ever focused on the consequences of climate change. Through this exercise, Casco Bay residents identified a number of vulnerabilities and corresponding opportunities for proactive mitigation. . With many of its transportation, electrical, and drinking water assets vulnerable to sea-level rise, change in water temperature, and storm surge, the safety, economic prosperity and quality of life of Maine residents could ultimately be at stake. As a result of this exercise, the region is exploring ways to proactively address these challenges.

Our partners aren't debating the science, nor are they waiting to see what happens; instead they are planning for an uncertain future. They are establishing their governance structures, actively engaging the private sector to jointly fund initiatives, and taking action to build resilience into their infrastructure, their planning, and their community. We are doing what we can to support these initiatives, while recognizing that this is just a small component of our overall mission.

Balancing Risks to Critical Infrastructure

The threats associated with climate change are just one of the many risks facing our national infrastructure. While we are here today to discuss the effects of climate change, we continue our efforts to secure all areas of our critical infrastructure from the many threats that face them. From preventing terrorism to safeguarding and securing cyberspace, reducing the risks to critical infrastructure must be a balance. Our focus remains on working with owners and operators of critical infrastructure to protect the Nation's infrastructure from all hazards.

Waking up every day with the job to ensure the security of the American people, and the availability of electricity, water, communications, transportation and financial networks, we must consider all hazards that could threaten our communities and ways of life. Working with the private sector and community leaders to plan for the impacts of climate change is essential. Long-term planning in the face of uncertainty is the cornerstone of risk management and we must address the risks of today while also preparing the country for the risks of the future.

Thank you for your time this morning. I look forward to any questions.