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Budgeting for the Storm: Climate Change and the Costs to National Security
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Thank you, Chairman Whitehouse, Ranking Member Grassley, and distinguished Members of the Committee, for the opportunity to testify today on the critical impact of climate change on national security. My views are based on over thirty-five years of active duty service to our Nation in the United States Navy, as a former Assistant Secretary of the Navy for Energy, Installations and Environment, and as a senior business executive very familiar with the security challenges of climate change to our energy, economy and environment.

Based on my extensive national security and business experience, I can most emphatically state that climate change is a significant and growing national security budget challenge. It is in both our immediate and long term national interests to allocate sufficient resources to address it now. Business as usual is not a viable option.

About five years ago, I joined dozens of fellow security experts – many of them retired flag officers like myself – in developing and issuing a report called the [Climate Security Plan for America](#). This report, and the several reports that followed, includes dozens of recommendations that I would recommend to your attention. It is based on two fundamental principles: first, that in order to make a real difference in addressing the security risks posed by climate change, climate security must be an articulated priority of the President, communicated plainly to both the American people and to the Federal agencies tasked to respond to the threat. Second, climate impacts must be integrated into the considerations of security actors throughout the government, not simply as a separate category of action but as a risk that informs programs and priorities of the Congress and throughout government agencies.

In a related report, [A Security Threat Assessment of Global Climate Change](#), the Center for Climate and Security's National Security, Military and Intelligence Panel concluded that we run the risk of catastrophic security consequences at home and abroad if we do not urgently and significantly reduce greenhouse gas emissions - reaching, at the very least, net-zero emissions by 2050 to avoid those consequences.

We could not have asked for a better response to these warnings and recommendations than the one President Biden has made, declaring in [Executive Order 14008](#) (Tackling the Climate Crisis at Home and Abroad) that climate change is an essential element of foreign policy and national security and setting the climate agenda for DoD and other Federal agencies. In his [Interim National Security Strategic Guidance](#), President Biden stated that we must be able to “meet challenges not only from great powers and regional adversaries, but also from violent and criminal non-state actors and extremists, and from threats like climate change, infectious disease, cyberattacks and disinformation that respect no national borders.”

This attention to climate threats and other global challenges goes beyond traditional national security priorities, however, it is aligned and integrated with them. China's posture in Asia and around the world, for example, is informed by growing water scarcity and food insecurity in Asia, coupled with the need to feed the world's most populous nation. Chinese leadership has set priorities and made economic choices to invest in renewable energy and electric vehicles because they see the direction the world is going and the opportunity that presents. Similarly, Russia's posture in the Arctic is inextricably linked to the receding ice and increased access to resources in the region. In this regard, the Russians see both opportunity and threat across their vast northern frontier.

In the past, Congress has repeatedly acknowledged the security impacts of climate change, such as when it declared climate change to be a direct threat to U.S. national security in 2017. The pragmatic, bipartisan approach Congress took more than seven years ago, as well as in recent years, has been extremely important, however, it needs to be broadened to include the significant economic and budgetary implications that climate change brings. Keying off the

ongoing benefits across the nation of the bipartisan infrastructure bill and the inflation reduction act will not only help to meet the climate change challenge but will also create significant economic, health and security opportunities.

In March of 2021, very soon after he became Secretary of Defense, Secretary Lloyd Austin highlighted climate change as a DoD priority in a [memo](#) to the Department, stating:

“We face a growing climate crisis that is impacting our missions, plans, and capabilities and must be met by ambitious, immediate action. In line with the President’s direction, we will elevate climate as a national security priority, integrating climate considerations into the Department’s policies, strategies, and partner engagements. We will incorporate climate risk assessments into our war-gaming, modeling, and simulation, and we will bolster mission resilience and deploy solutions that optimize capability and reduce our own carbon footprint. Where possible, we will seek to lead the way for alternative climate-considered approaches for the country.”

This was a logical progression from statements Secretary James Mattis made during the last Administration. Secretary Mattis [stated](#) that “the effects of a changing climate — such as increased maritime access to the Arctic, rising sea levels, desertification, among others — impact our security situation.” He added, “Climate change can be a driver of instability and the Department of Defense must pay attention to potential adverse impacts generated by this phenomenon,” adding that “...climate change is impacting stability in areas of the world where our troops are operating today.”

The common thread is a recognition of the threat that both Secretaries understand: recognition that climate change is now and increasingly in the future will continue to drive instability around the world; recognition that the opening Arctic will create new dimensions in great power competition; recognition that extreme weather will create both readiness challenges at home and humanitarian crises here and abroad that our military will have to engage and manage. It is a recognition that we must prepare for this change, and that dealing with climate change aligns with the Department’s traditional mission of crisis response. Just as tactical commanders would not consider engaging in an operation without weather reports and intelligence, our strategic approach must thoughtfully consider and incorporate the effects of climate change, which are reshaping global security dynamics in multiple ways.

Climate change is different from traditional military threats. It is not like having a specific nation state or terrorist enemy, a rapid and well-defined response timeline, or a clearly located geographical crisis region to which we are responding. The adverse effects of climate change create more frequent, intense and widespread natural and humanitarian disasters due to typhoons, flooding, wildfires, drought, disease, crop failure and the consequent migration of large populations. These climate-driven severe weather events will magnify existing tensions in critical regions, overwhelm fragile political, economic and social structures, causing them to fracture and fail. The predictable result: much greater frequency and intensity of regional conflict and direct threats to U.S. interests and national security. This is why in 2007, over seventeen years ago, the CNA Military Advisory Board report on “National Security and the Threat of Climate Change” described climate change as a “threat multiplier”. And ten years ago this month, the Military Advisory Board published an updated report, “National Security and the Accelerating Risks of Climate Change” in which climate change was called a “catalyst for instability and conflict”. All of this means more frequent and demanding missions for our men and women in uniform, both at home and internationally.

In addition to the geopolitical stress it applies, climate change is having a direct impact on our mission training, combat readiness and installations. As Assistant Secretary my responsibilities were for all Navy and Marine Corps installations, and I can tell you that our base and regional commanders know firsthand that we don’t have the luxury of waiting to see what mission degradation happens to our infrastructure before shoring up our facilities. Our commanders are working hard to reduce the risk to current installations by incorporating resilience measures and, in some cases, by relocating training and operational facilities away from growing climate risks. The military infrastructure planning is much more complicated and demanding than ever and has clear implications for our overall DoD budget. It makes much more sense to invest in installation risk reduction now rather than to wait and pay much more for repairs after the fact.

This is clear when we look at the increasing impact of extreme weather. In October 2018, for example, [Tyndall AFB suffered more than \\$5 billion in damages](#) from Hurricane Michael, with 484 buildings destroyed or damaged beyond repair. In September 2018, [Camp Lejeune suffered \\$3.6 billion in damages](#), with more than 400 buildings demolished. The full recovery of both bases is still not completed. Also in 2018, [Offutt AFB in Nebraska, the home of U.S. Strategic Command, suffered more than \\$1 billion in damages](#) and severe mission impacts due to serious

flooding incidents. Just last year, Air Force facilities on Guam, essential to our Indo-Pacific Command strategy, suffered damage from Typhoon Mawar that is estimated to cost nearly \$10 billion to repair. That is in addition to more than \$1.3 billion needed to restore Navy hangars and the Apra harbor breakwater. As a result of these and other unprogrammed costs, the unfunded DoD MILCON priority list has grown to more than \$7 billion for the 2025 budget.

Severe storms and associated flooding are far from the only impacts the military has suffered. Wildfire risks, increased by extreme drought, have in the past driven evacuations of military installations such as the Marine Corps Mountain Warfare Training Center; Naval Air Station Point Mugu; Vandenberg AFB; and Camp Pendleton, all in California. [Heat-related illnesses and deaths during training have increased dramatically in the last decade](#). The prudent leadership response in many cases has necessarily been to roll back the amount and intensity of realistic mission training with a concurrent reduction in combat readiness.

A 2019 DOD study [examined](#) 79 mission critical military installations and found that two-thirds faced climate risks, with flood and drought being the most common. In subsequent assessments, each military service identified additional vulnerable sites: the Marine Corps [identified](#) 10 sites including Camp Pendleton and Camp Lejeune and the Navy 16 including Naval Base San Diego and Naval Air Station Key West, the Air Force's top 10 [included](#) six sites in Florida including Tyndall AFB and MacDill AFB; and the Army's top 10 all [identified](#) desertification as the primary risk and were mostly sites in the southwestern United States such as Yuma Proving Ground in Arizona and Fort Bliss, Texas.

In the face of these threats, Congress has a critical role in both policy and resources to address the climate impacts on national security. In the past few years, Congress has, on a bipartisan basis, [passed multiple measures](#) in a series of National Defense Authorization Acts focused on improving installation resilience to climate change and on planning for future challenges – particularly in the Arctic. Those efforts need to be continued and viewed as an integral part of DoD funding. In doing so, here are some considerations:

- Taking climate threats into account doesn't always cost more money. Sometimes it involves choices as simple as siting a building on higher ground, away from floodplains, or ensuring regional planning and wargames incorporate future climate scenarios. It will involve informing decisions with the best possible science and projections. The bottom line, though, is that DoD must incorporate climate as a consideration throughout the enterprise.
- Increased investments in predictive and intelligence systems, including weather and oceanographic data and analysis, will help the Department to prepare for these threats, and may in some cases avoid them. While climate stresses can be a source of instability in different regions of the world, it is in our interest to anticipate conflict and act to head it off, but we need to ensure we have the tools that will help us do so.
- A greater investment in adaptation and resilience is necessary and must be aligned with mission priorities. Even with current levels of warming and as noted above, our combat readiness and installations are impacted by climate. When Tyndall AFB was leveled by Hurricane Michael six years ago, it not only damaged the buildings it damaged multiple F-22s that were unable to evacuate because of their maintenance status. Climate risks put our people, our missions, our facilities and our war fighting assets at risk. As a priority, Congress should carefully consider increases in funding for pragmatic, preventative measures to increase DoD's adaptation and resilience to prepare it for unavoidable climate impacts. Ultimately, failing to prepare and take measures now will cost much more in the future.
- While we must be resilient and adapt to the near-term climate challenges already underway, the longer term security threats of climate change are driven by the global warming effects of greenhouse gas emissions. As highlighted above, the Center for Climate and Security published a [Security Threat Assessment of Global Climate Change](#) looking at the consequences of 2-degree and 4-degree warming scenarios. The security implications of these scenarios were catastrophic, and the only way to avoid is to achieve net-zero emissions as soon as practical; by 2050 at the latest. DoD need not be the only part of that mitigation solution, but it can and should lead by example, increasing efficiency and using low or zero-emissions energy sources wherever and whenever appropriate for the mission.

The military has understood for many years the threat to operational missions and installation infrastructure that climate change poses. Consequently, the Department of Defense has significantly elevated its priority and started to increase the resource allocation it is receiving. However, in order to ensure that our military capabilities and essential national security continue to be resilient in the face of the climate challenges ahead, DoD will need your continuing focus on this threat and prioritized budgetary support.

In summary, at the highest level, our overall national security is underpinned by three inextricable factors: energy security, economic security and environmental security. They are essential to attain every aspect of America's prosperity, health and quality of life and must be balanced and, wherever possible, managed synergistically. Taking that broad view, there is good news in viewing the large challenges of climate change as great opportunities for national investment that are already being pursued. In the U.S. and globally the deployment of sustainable energy is growing rapidly due to lower prices, higher demand, federal & state policy and budgets, and record levels of public and private sector investment. The transition to a new energy economy is well underway across the nation with direct benefits to our economy, job creation, security, health and quality of life, especially in the many states where the major share of new investments in clean energy, advanced technology and manufacturing are happening. On the international stage the United States needs to compete, not just militarily but technologically and economically in a global race to lead the transition to a clean energy economy. With rapid development and large scale deployment of new energy generation and efficient use of electricity for manufacturing, transportation, industry, agriculture, and buildings, we can create the kind of future in which our national security is both strong and sustainable.