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Chairman Gosar, Ranking Member Lowenthal, and members of the subcommittee, thank you for the opportunity to testify today. I am honored to be here to contribute to the subcommittee's infrastructure work. My name is Cathleen Kelly, and I am a Senior Fellow for Energy and Environment at the Center for American Progress, a nonprofit think tank dedicated to improving the lives of Americans through progressive ideas and actions.

Americans rightly expect that the infrastructure that people and the private sector rely on every day—from roads and bridges to power plants, electric grids, dams, drinking water, and wastewater treatment facilities—is safe and structurally sound.[1] Yet just this month, the American Society of Civil Engineers gave our nation's infrastructure a D+ rating and identified a $2 trillion investment gap that must be filled over the next 10 years to modernize it.[2]

Today, I'm going to focus my testimony on three points that this subcommittee and the Congress as a whole must consider as it designs a plan to upgrade the nation's infrastructure and support U.S. economic competitiveness.

1. More extreme weather and climate change threaten U.S. infrastructure and increase maintenance, repair and rebuilding costs

The world is getting hotter and extreme weather more frequent and intense.[3] These indisputable facts have potentially catastrophic and costly consequences for communities and infrastructure across the country. For example, 188,000 Northern Californians were ordered to evacuate last month after successive weeks of heavy rain overran the Oroville Dam, causing water to gush through a spillway breach.[4] This event, which occurred after a dramatic swing from drought to deluge, threatened to send floods tearing through communities.

Volumes of scientific evidence demonstrate the clear link between more intense and frequent extreme weather and what NASA and the National Oceanic and Atmospheric

Administration, or NOAA, call a "Sustained Long-Term Climate Warming Trend."[5] As temperatures rise, people around the nation face a troubling new reality of more punishing storms, longer and more devastating droughts, hotter heat waves, and heavier downpours.[6]

As in the case of the Oroville dam, more extreme weather driven by climate change puts added pressure on the country's aging dams, roads, rail lines, bridges, water infrastructure, and power plants.[7] In 2012, Superstorm Sandy, for example, caused massive power outages across New York and New Jersey, leaving more than 8.5 million customers without power.[8]

More damaging storms and climate change effects also put the nation's ports, pipelines and military installations at risk.[9] For example, according to PortMiami's 2035 Master Plan, sea level rise and climate change pose significant and costly threats to the port's future.[10] With PortMiami supporting 207,000 jobs and moving $28 billion in goods and services annually, damage from extreme weather events could put a serious squeeze on the Sunshine state's economy.

In Alaska, temperature increases and permafrost thaw have added between $3.6 and $6.1 billion (or 10 to 20 percent) to the cost of maintaining public infrastructure, including roads, pipelines, and airports, as the once-frozen ground softens and sinks.[11]

The nation's coastal states are not alone in facing serious climate change risk. In September 2013, an unprecedented rainfall event inundated the densely populated Front Range of Colorado's Rocky Mountains, causing catastrophic flooding that impacted 24 counties and 132 jurisdictions.[12] The three-day record-breaking deluge killed ten people and caused nearly $4 billion in losses.[13] In 2015, FEMA assessed disaster assistance spending in the wake of the storm, and concluded that if Boulder County did not have strong flood risk management standards in place, flood damages to its roads, water and wastewater systems, and other assets would have increased by 331 percent.[14] FEMA also concluded that, if Boulder, Larimer, and Weld Counties had adopted even higher flood risk management standards, they could have reduced their estimated flood losses by 70 percent.[15]

In the wake of declared flood disasters across the country, the Federal Emergency Management Agency, or FEMA, has spent $48.6 billion in Public Assistance Grants between 1998 and 2014 to repair and rebuild buildings, public utilities, roads, bridges, levees and dams.[16] Louisiana, New York, Florida, Texas, and Mississippi, respectively, received the largest portions of this FEMA support to rebuild critical infrastructure damaged by flooding.[17]

According to NOAA "The U.S. has been hit by 203 extreme weather and climate disasters since 1980 that have each resulted in at least $1 billion in damages. Together, these 203 disasters cost the nation more than $1.1 trillion. Yearly disaster damages have been steadily rising, with the six highest annual extreme weather losses all occurring within the last decade.[18]

A November report by the Obama administration's White House Office of Management and Budget identified climate change as a serious fiscal risk to the federal government.[19] The report calculated that sea level rise and more extreme weather will drive up annual federal disaster recovery costs in coastal areas by $19 billion by 2050 and by $50 billion by 2075.

If Congress does not design an infrastructure package that will reduce the risks and costs of climate change and more extreme weather, demands for infrastructure maintenance and disaster assistance and spending could drain federal, state, and local government budgets and burden businesses' bottom lines.[20]

2. Investing in infrastructure that can withstand more extreme weather and climate change saves money and lives

Many companies and state and local leaders have drawn a valuable conclusion from the rise in devastating and costly disasters: we can either make the fiscally responsible choice today to invest in infrastructure that can withstand more extreme weather and other climate change effects, or pay much more to fix and rebuild our infrastructure in the future.[21] Like many risk management strategies, investing in efforts to build resilience to climate change pays big dividends. According to a report by the Multihazard Mitigation Council, every $1 invested in disaster risk reduction and infrastructure and community resilience saves $4 in future disaster costs.[22]

Large corporations, including Exxon Mobil, ConocoPhillips, Total S.A., Statoil, and Royal Dutch Shell, are protecting billion-dollar infrastructure assets from rising sea levels, more severe storms and hotter temperatures.[23] President Trump has also taken steps to protect his own business ventures from climate change threats.[24]

To adapt to higher temperatures and reduced water availability in a changing climate, utilities and utility commissioners have already planned and installed equipment that is resilient to more extreme weather.[25] For example, the Afton Power Plant in Las Cruces, New Mexico, uses a hybrid wet and dry cooling system to reduce water needs and save the Public Service Company of New Mexico money.[26]

Similarly, city leaders are not waiting around for the next devastating extreme weather disaster to reduce climate change threats. 71 mayors from red and blue states, representing over 38 million Americans, signed an open letter to President Trump asking him to partner with cities to curb carbon pollution and prepare for more extreme weather.[27] In the letter, the mayors highlight that, "the cost of prevention pales in comparison to the cost of inaction, in terms of dollars, property and human life."[28]

For this reason, local leaders around the country are already taking steps to prepare for climate change. Miami-Dade County in Florida launched in 2015 an $11.9 billion waste water and water distribution capital improvement project that takes into account the risks of sea-level rise and more intense storm surges.[29] The City of Miami-Beach is investing an estimated $500 million to protect the city's water and power supply, roads and homes from high tide flooding, exacerbated by sea level rise. The project will modernize the city's plumbing system, raise sea walls, and elevate roads by as much as six feet in anticipation of 6 to 10 inches of sea-level rise by 2030 and up to 27 inches by 2060.[30]

After Springfield, Massachusettes was hit by 5 disasters in the span of just three years, the city took steps to improve its aging infrastructure to reduce future disaster risks. [31] [32] With support from the Housing and Urban Development, or HUD, the city is now working to restore hydropower and install a combined heat and power plant to help prevent future power losses during storms.[33] Springfield is also strengthening its dams and other flood protections, providing green infrastructure job training, and improving housing quality and safety in low-income neighborhoods most vulnerable to extreme weather and climate change risks. [34]

In Louisiana, the Isle de Jean Charles has been confronted by rapid land subsidence and erosion from dredging, battering storms, and rising seas that have whittled the island's previous 32,000 acres down to just 320.[35] As their homes, roads, and way of life became increasingly threatened, the Band of Biloxi-Chitimacha-Choctaw tribe faced a difficult choice: stay and watch the land that supported generations of community members disappear into the sea or move to higher, safer ground. With financial support from HUD, the tribe crafted a plan to resettle the community and build homes and infrastructure that will better withstand future extreme weather events.[36] The Isle de Jean Charles resettlement effort offers innovative solutions for other coastal communities at risk of being washed away, and a stark reminder of the need to build new infrastructure in areas that are not susceptible to costly and repeated disaster damages, and ultimately abandonment.[37]

U.S. Cities and companies are not alone in taking action to reduce climate change risks. U.S. intelligence and defense experts also recognize climate change as a threat that must

be managed by shoring up military bases vulnerable to sea level rise, and considering climate change risks when crafting national security plans and policies.[38] World leaders from 196 countries have committed to reduce the risks of climate change by embracing the Paris Agreement to support resilient and low-carbon economic development.[39]

By drawing on the experience and actions of business, city, military and world leaders, Congress can support investments in infrastructure that can withstand more extreme weather, enhance real estate market values, reduce insurance costs, minimize disaster damages, protect public health and safety, and drive long-term economic growth.[40]

3. Congress should support a plan to build the resilient infrastructure and clean energy systems the nation needs to prosper well into the future.

Congress has a responsibility to the American people to support an infrastructure plan that will build facilities that can withstand the climate change effects the nation can no longer avoid.[41] The infrastructure decisions we make today will have long-lasting impacts on the nation's ability to protect clean air and clean water, and to compete in the global clean energy market. For this reason, Congress should target investments in projects that reduce carbon pollution to avoid the worst and most costly effects of climate change.[42] In addition, Congress' infrastructure plan should support the protection and expansion of natural or nature-based infrastructure, including coastal wetlands, reefs, and dunes to reduce the risks of coastal flooding and storm surge.[43]

To the greatest extent possible, Congress should prioritize investments in communities facing the greatest challenges, and ensure that companies receiving federal support abide by high labor standards. Lastly, Congress' infrastructure plan should not include tax cuts that enrich Wall Street investors. Many cities do not need expensive equity capital through public-private partnerships because they already have access to affordable credit. What local governments often lack is the revenue needed to support new project debt. Congress can help to fill this gap by crafting an infrastructure plan that provides direct federal funding to support critical infrastructure improvements.[44]

By designing an infrastructure plan that follows basic principals of smart risk management, Congress can boost our nation's economic competitiveness, and save lives and money for taxpayers, businesses, and households in the face of more extreme weather and climate change.

Thank you for the opportunity to discuss this important issue with you today.

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