Time to Wake Up: Climate Change Threatens Infrastructure

As delivered on the Senate floor

Tuesday, June 18, 2013

Mr./Madam President, I'm here again, I think it's the thirty-sixth time—to speak as I do every week on global climate change.

To remind us that it is time for us to wake up, and to take action to protect our communities. The risks that we ignore will not go away on their own; the longer we remain asleep, the greater the challenges we leave for our children and grandchildren.

The changes we're already seeing—rising sea levels, floods and erosion, more powerful storms—are taking their toll in particular on our aging infrastructure, which I'd like to talk about today, our roads, our bridges, our sewers and water pipes.

This kind of infrastructure is designed to operate for fifty to one hundred years, and to withstand expected environmental conditions. So what happens if expected weather and climate patterns change? Well, they are.

[Show U.S. Historical Temperatures Chart]

According to the draft National Climate Assessment, and I quote: "U.S. average temperature has increased by about 1.5°F since 1895; more than 80% of this increase has occurred since 1980. The most recent decade was the nation's hottest on record." End quote.

[Show U.S. Observed Changes in Heavy Precipitation Chart]

We're also getting more precipitation, with more and more of our rain coming in big, heavy downpours. Between 1958 and 2011, the amount of rain that fell during individual rain storms increased in every region of the country—up 45 percent in the Midwest and 74 percent in our Northeast.

Last month, the Government Accountability Office issued a report revealing the risks posed to United States infrastructure by climate change. The report, which I requested along with Finance Chairman Max Baucus, shows that we can no longer use historical climate patterns to plan our infrastructure projects.

First, limited resources often must be focused on short-term priorities. Fixing an unexpected water main break, for example, won't usually allow for upgrades to account for climate change. And long-term projects that do include climate change safeguards usually require more money up front. That's GAO's warning.

GAO also found that local decision makers, folks in our home communities, need more and better climate information. The faster you drive, the better your headlights need to be, and carbon pollution is accelerating changes to our climate and weather. Our communities need the information, the headlights to see these oncoming changes. And it needs to be local. When you're constructing a bridge in Cape Hatteras, it's more helpful to know how climate change will affect North Carolina than North America.

Thankfully, leaders across the country are waking up to the reality of climate change and are making evidence-based, not ideological, decisions about how to best serve their communities.

[Show Twin Span Bridge Chart]

This is the Interstate 10 Twin Span Bridge that crosses Lake Pontchartrain near New Orleans. During Hurricane Katrina, the storm surge rocked the bridge's 255-ton, 255-ton concrete bridge spans off of their piers, twisting many, and toppling others down into the lake.

Hurricane Katrina brought the largest storm surge on record for Lake Pontchartrain. Scientists tell us that climate change loads the dice for these stronger and more frequent storms, so the recovery design team decided to strengthen and raise this bridge. They made a larger initial investment in order to reduce maintenance costs in the future. That is smart planning.

[Show New Twin Span Bridge Chart]

Hurricane Isaac in 2012 was the first major test for the new bridge, and it passed. Damage was limited to road signs

and electrical components. This is the new higher bridge over here, there's the old bridge down on the left there.

If you go south, to Louisiana State Highway 1, you'll find that it's the only access road to Port Fourchon. Senator Vitter, our Ranking Member on the Environment and Public Works Committee, from Louisiana, has told us that eighteen percent of the nation's oil supply passes through Port Fourchon. It's a pretty important port, and

Highway 1, the only access road to it, is closed three-and-a-half days a year on average due to flooding, according to GAO. NOAA scientists project that within fifteen years portions of Louisiana Highway 1 will flood an average of thirty times—three zero—thirty times each year.

[Show New Highway 1 Chart]

State and local officials raised eleven miles of Highway 1 by more than twenty-two feet. So when Hurricane Isaac brought a six-and-a-half-foot storm surge up the Gulf, those raised portions were unaffected.

Go up north to Milwaukee, Wisconsin, and you find that Milwaukee's Metropolitan Sewerage District spent $3 billion in 1993 to increase the capacity of its sewer system, based on historical rainfall records dating back to the 1960s. But extreme rain storms in the Midwest have changed drastically. Milwaukee experienced a 100-year storm three years in row. Milwaukee experienced 100-year storms in 2008, again in 2009, and again in 2010.

The University of Wisconsin projects that these storms will be even more common in the future. So Milwaukee took steps to improve the ability of nearby natural areas, like wetlands, to absorb that extra runoff from rainstorms. This eased the pressure on the city's wastewater system.

The GAO infrastructure report also found that areas recently hit by a natural disaster tend to get proactive about adaptation. And I think it's easy to see how getting clobbered by a hurricane will make you rethink your emergency preparedness, but waiting for disaster is not risk management, and we can and must do better.

In my home state of Rhode Island local leaders are wide awake to climate change. North Kingstown, for instance, is a municipality whose planners have taken the best elevation data available, and modeled expected sea-level rise, as well as sea-level rise plus three feet of storm surge. By combining these models with maps that show the roads, emergency routes, water treatment plants, and estuaries, the town can better plan its transportation, conservation, and relocation projects.

Just last week, North Kingstown's efforts were recognized by a grant from the EPA, and will be a model for communities throughout the country.

Other coastal states face many of the same risks that we are facing in Rhode Island. None more than Florida. A study of sea-level rise on U.S. coasts found that, in Florida, more than one and a half million residents and almost 900,000 homes would be affected by three feet of sea-level rise. Both numbers--one and a half million residents and almost 900,000 homes—are almost double any other state in the nation.

[Show southern Miami SLR maps]

These maps show what three feet of sea-level rise means for Miami-Dade County in southeastern Florida. The map on the left shows the current elevation in southern Miami-Dade, compared to three feet of sea-level rise, shown here on your right. The blue regions which are green here, are the regions that have gone underwater with 3 feet of sea-level rise. They would lose acres and acres and acres of land. This nuclear power station and this wastewater treatment plant are virtually cut off from dry land.

And the flooding won't just be along the coast; low-lying inland areas are also at risk. That's because in Florida, particularly in the Miami metropolitan area, the buildings are built on limestone, Florida stands on a limestone geological base, and limestone is porous. Up in New England, we can build levees and other structures to hold the water back. In Miami, you'd be building those structures on a geological sponge. The water will just seep under and through the porous limestone.

Rising seas don't just threaten Southern Florida. According to the American Security Project, Eglin Air Force Base on the Florida Panhandle coast—which is the largest Air Force base in the world—is one of the five most vulnerable U.S. military installations because of its vulnerability to storm surges, sea-level rise, and saltwater intrusion.

Responsible Floridians looking at these projections have decided to take action. Four counties in Florida—Miami-Dade, Palm Beach, Broward, and Monroe—have formed the Southeast Florida Regional Climate Change Compact.

Using the best available science, they have assessed the vulnerability of South Florida's communities to sea-level rise. In their four counties in Florida alone, a one-foot rise in sea level would endanger approximately $4 billion in property, just in those four counties. A three-foot sea-level rise would endanger approximately $31 billion in property. In Monroe County, three of the four hospitals, two-thirds of the schools, and 71 percent of emergency shelters are endangered by a one-foot rise. That's a lot of infrastructure at risk.

Together, these Florida counties, which are led both by Republicans and Democrats, this is a bipartisan county effort in Florida, have adopted a plan to mitigate property loss; make infrastructure more resilient; and protect those essential community structures like hospitals, schools, and emergency shelters.

This October, this past October, those member counties signed a five-year plan with 110 different action items, including efforts to make infrastructure more resilient, reduce the threats to vital ecosystems, help farmers adapt, increase renewable energy capacity, and educate their public about the threat of climate change to Florida.

Looking at all of those risks to Florida, looking at the bipartisan action taken by those county leaders in Florida, I have to ask: if you are a Member of Congress from Florida, how can you credibly deny climate change?

Studies show that about 95 percent of climate scientists think climate change is really happening and humans really are contributing to it. About 5 percent disagree or aren't so sure. Can Floridians here in Congress really take the five-percent bet? Does that seem smart and cautious and prudent and responsible? This is the only Florida we've got; and the Sunshine State is ground zero for sea-level rise. It is long past time for us to act on climate change, but it's not too late to be ready and it's not too late to be smart in Florida and elsewhere.

In Florida, and in other states, infrastructure has to be designed for and adapted to the climate changes we can foresee. So I thank the Government Accountability Office for this report.

Nature could not be giving us clearer warnings. Whatever higher power gave us our advanced human capacity for perception, calculation, analysis, deduction, and foresight has laid out before us more than enough information for us to make the right decisions. Fortunately, these human capacities provide us everything we need to act responsibly on this information, if only, if only we will awaken.

Madam President, I yield the floor. I note the absence of a quorum