

Written Testimony - Kristin Jacobs, Commissioner, Broward County, FL
Environment and Public Works Clean Air and Nuclear Safety Subcommittee
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Good Morning, Mr. Chairman.

I would like to personally thank you for your leadership and for convening this hearing today.

As you know, Florida, especially south Florida, is extremely vulnerable to the effects of climate change. Our extensive coastline, low land elevations, flat topography and unique geology combine to put south Florida communities on the front line for combatting climate impacts.

During my 16 years in public service as a Broward County Commissioner, I have been dedicated to addressing the issue of climate change. Sea level rise is one of our most pressing concerns, but there are many other effects of climate change that we're experiencing. And as we know, impacts are not isolated to the nation's coastlines, or restricted to city limits, county lines, or state boundaries. They have cascading effects, geographically and economically.

In southeast Florida, the hazards are diverse and include coastal and inland flooding, storm surge, saltwater contamination of drinking water supplies, impacts to water and wastewater systems, beach erosion, and threats to public and private property and infrastructure. We will also experience hotter temperatures, public health challenges such as longer and more severe heat waves, ocean acidification and warming with impacts to coral reefs and fisheries, and additional stresses on the Everglades.

The effects are showing up all around us. In south Florida we have chosen to undertake a regional approach to planning for climate change – one that emphasizes collaboration and collective action. Our journey has been propelled by the shared reality of impacts that are already affecting our communities. Already, we experience extensive flooding during extreme high tide events, with neighborhoods inundated as seawater pours over sea walls, pushes up through storm drains, and rises up through the ground.

Iconic business districts are affected including:

- Duval Street in Key West,
- The famed Alton Road in Miami Beach, and
- Las Olas Boulevard in downtown Fort Lauderdale.

Miami Beach is now undertaking a \$200 Million stormwater master plan to combat sea level rise and Fort Lauderdale recently estimated similar improvements at \$1 Billion for their system.

While these provide recognizable examples, in reality, the full expanse of our urban landscape suffers from increased flood risk. Due to sea level rise, the discharge capacity of our regional flood control system has been reduced, such that even minor storm events can result in extensive flooding. Severe storm events, another climate-induced impact, further exacerbate risk. We are seeing an increase in the number of record-breaking storms, even during the dry season, including the one-in-a-thousand year storm event this last January when 22 inches of rain fell across Palm Beach County in less than 24 hours.

These changes are necessitating major investments in new infrastructure and system retrofits:

- The South Florida Water Management District has identified 18 coastal salinity control structures as potentially vulnerable to sea level rise. These structures are designed to separate coastal waters from freshwater within our canals. Control gates allow flood waters to discharge during rainfall events. However, as a result of sea level rise, there is less difference between upstream and downstream water levels and discharge capacity is reduced. The result is that during certain high tide events flood gates cannot be opened without saltwater spilling in, and stormwater cannot be discharged. Forward pumps can address the problem; however, installation of these structures is estimated to cost \$50 Million each. Six are currently prioritized for retrofit.
- Due to increasing flood risk, the City of Hallandale Beach has been forced to retrofit drainage wells with pumps in order to alleviate flooding at a total cost of \$10 Million.
- Following Tropical Storm Sandy, additional beach erosion resulted from prolonged onshore winds during extreme high tides and led to the collapse of 2,000 feet of state road A1A in Fort Lauderdale. The cost of repairing this emergency evacuation route exceeded \$21 Million. The community learned from this event and the restored roadway included a resilient redesign with an elevated roadbed, fewer lanes, additional set back, and the creation of buffer dunes.
- In the Florida Keys, the City of Key West, raised a local road by nine inches when warrants were voided on corroded police vehicles as a result of repeated exposure to tidal flooding. Today, Monroe County is preparing to elevate another roadway by 12 inches due to tidal flooding and in consideration of future sea level rise the County amended plans for a local fire station, raising the site an additional 1.5 feet.
- Further north, in Palm Beach County, the Florida Department of Transportation is planning to raise PGA Boulevard by three feet to address sea level rise and improve stormwater management.

Another impact of sea level rise is the loss of potable water capacity within the Biscayne Aquifer, our region's primary water supply. Sea level rise has accelerated saltwater intrusion and the contamination of coastal wells. As much as 50% of Broward County's coastal well field capacity is considered vulnerable, and replacement with alternative water supplies is estimated to cost \$300 Million in our County alone.

Climate impacts affect critical community resources, vulnerable populations, and vital infrastructure. According to the National Climate Assessment (NCA), Miami, like other southern cities, is already seeing an increase in the number of days with temperatures exceeding 95°F, during which the number of deaths is above average. Within the Southeast, south Florida is expected to see the greatest increase in maximum temperatures. This is of particular concern as many low-income households may not be able to weatherize their homes or operate air cooling systems and Florida already has the highest number of low-income households, and households with elderly members, requiring energy assistance, of states in the Southeast (Climate of the Southeast United States, 2013).

In addition to the threats to public health directly relating to heat exposure, higher temperatures contribute to the formation of smog and allergens. Smog and allergens can trigger asthma attacks and other respiratory illnesses. NCA projections predict an increase in smog in the 19 largest urban areas of the Southeast, leading to an increase in deaths (NCA, Chapter 17).

To reduce community risk and the potential for significant economic losses, adaptation necessitates major investments in upgrading infrastructure, coupled with an aggressive plan to head off the most

severe climate impacts through deep reductions in carbon pollution, the leading cause of global climate change.

The economic implications of a failed response do not allow for inaction. With just 1 additional foot of sea level rise, \$4 Billion of taxable property will be flooded in Palm Beach, Broward, and Monroe counties. At 3 feet, that figure rises to \$31 Billion.

To provide additional economic scope, southeast Florida is home to two of the nation's most active sea ports and two international airports producing more than \$66 Billion annually in economic activity. One-third of our state's gross domestic product is tied to the economics of southeast Florida, and of course nation-wide coastal counties account for 45% of our national GDP. Critical assets, infrastructure, local business and households are the fabric of our economy and, as we know from risk analyses, investments in resilience pay off by a factor of 4:1.

In addition to discussing risk, I would like to highlight some of the ways in which we are planning regionally to help build resilience within Broward County and across southeast Florida. I also hope to underscore why federal action on both climate mitigation and adaptation is critical to our individual and collective efforts.

In 2009 Broward, Palm Beach, Miami-Dade and Monroe counties came together to form the Southeast Florida Regional Climate Change Compact.

We have coordinated on many initiatives to reduce greenhouse gas emissions and to adapt to the climate change impacts we are already seeing and expect in the future.

While we have been recognized both nationally and internationally as a leading example of effective local climate action, I am most proud of the work the staff of each county has done in putting together our Regional Climate Action Plan and collaborating on implementation.

Our regional plan includes 110 recommendations covering a wide array of areas, including:

- Energy
- Water
- Transportation
- Sustainable Communities
- Natural Systems
- Agriculture
- Outreach

While our plan offers flexibility, and allows each individual county or city to decide how best to implement the plan, we are finding that in practice it often makes fiscal and practical sense to work together on specific initiatives. This cooperation has accelerated action throughout our region.

Examples of what we have seen so far include:

- Each of the four counties has formally integrated climate change considerations and sea level rise projections into their comprehensive plans and other planning documents.
- In support of climate adaptation, we are advancing plans for a regional surface water reservoir providing surface water storage, diversion of storm water runoff, and aquifer recharge.

- We have formed a coastal resilience work group to expand the use of coral reefs, mangroves, dunes and other living shoreline projects. When integrated with urban systems, these natural infrastructure elements provide optimum shoreline protection while providing habitat preservation, or restoration.

I would also like to make special note of some of our successful partnerships with the federal government including:

- Technical support from NOAA in developing vulnerability maps and conducting assessments;
- Financial support from the US Department of Energy for the Florida Go Solar initiative to streamline permitting and identify finance strategies to incentivize and facilitate investments in rooftop solar systems;
- A grant from NOAA supported our exploration of “Adaptation Action Areas,” a new program under Florida law that allows communities to target climate-vulnerable areas for adaptation investments;
- Broward and Miami-Dade counties have worked with the US Geological Survey to create advanced hydrologic models to assess interactions between sea level rise, stormwater, and potable water supplies;
- Compact partners are currently benefiting from a Federal Highway Administration grant to assess the vulnerability of regional transportation infrastructure to climate change; and
- In just two weeks we will be hosting a south Florida version of Rebuild by Design to foster Resilient Redesign in our urban environment. We are pleased that both HUD and the EPA have offered technical expertise to support this process.

Finally, I have the personal honor and privilege of serving on the President’s State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience. Through the Task Force, state and local government leaders and policymakers from all over the country have come together to talk about the climate impacts they are facing, the solutions they are developing and implementing, and ways we can best work with each other and the federal government to do more to not only limit future climate change, but to live with the impacts we are already experiencing.

Increasingly, it is clear that local governments and regional initiatives like the Compact play a significant role in supporting regional decision making with technical support, expertise, and financial assistance from the federal government. Although the local level is where much of the needed adaptation to climate impacts will happen, we are still in great need of policies at the state, federal, and international levels that reduce carbon pollution and accelerate the transition to a clean energy economy.

I am pleased to share that in this vein, Broward County has committed to a 20% renewable energy goal and our board recently provided unanimous bi-partisan support for the EPA’s Clean Carbon Rule, which will result in much needed and long-overdue action that will benefit public health, future generations, and the economy in communities like mine.

Climate change is one of the most important issues facing our region in the 21st century. Please help us make sure that South Florida remains a vibrant, attractive, economically successful region for generations to come. We look forward to continued collaborations with our federal agency partners.

Thank you again for the opportunity to speak to you today.