

BUILDING CLIMATE RESILIENT COMMUNITIES

HEARING
BEFORE THE
SELECT COMMITTEE ON THE
CLIMATE CRISIS
HOUSE OF REPRESENTATIVES
ONE HUNDRED SEVENTEENTH CONGRESS
FIRST SESSION

HEARING HELD
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BUILDING CLIMATE RESILIENT COMMUNITIES

FRIDAY, JUNE 11, 2021

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON THE CLIMATE CRISIS,
Washington, DC.

The committee met, pursuant to call, at 12:31 p.m., via Zoom, Hon. Kathy Castor [chairwoman of the committee] presiding.

Present: Representatives Castor, Bonamici, Brownley, Huffman, Casten, Neguse, Escobar, Graves, Palmer, Carter, Miller, Armstrong, and Crenshaw.

Ms. CASTOR. Welcome. Good afternoon. The committee will come to order. Without objection, the chair is authorized to declare a recess of the committee at any time. As a reminder, members participating in a hearing remotely should remain visible on the screen at all times throughout the hearing. And as with in-person meetings, members are responsible for controlling their own microphones. Members can be muted by staff only to avoid inadvertent background noise.

In addition, statements, documents or motions must be submitted to the electronic repository to SCCC.repository@mail.house.gov.

Finally, members or witnesses experiencing technical difficulties should inform the committee staff immediately. So let's get started.

Good afternoon. Welcome. Thank you for joining this remote hearing. Today, we are going to talk about cities and states working to protect their communities and how to increase resilience to climate impact. I recognize myself for 5 minutes for an opening statement.

Members, as Congress continues to work on much-needed infrastructure and jobs legislation, the climate crisis keeps proving that we need generational investments that will create a stronger and more resilient America. As we speak, the West is facing a record-setting mega drought, increasing risks of dangerous heat waves and wildfires, and shrinking water supplies for millions of Americans. Severe storms, persistent droughts, massive flooding, and other climate-related disasters cost our Nation nearly \$100 billion in 2020 alone.

And earlier this year, Americans experienced a deadly and destructive winter storm in Texas, and historic floods in the Southeast. So we do not have time for half measures. The time to invest in resilience is now.

The building blocks of a stronger, more resilient America are resilient communities and partnerships between Federal, regional, state, local, and Tribal governments. It is up to Congress to help

build those strong partnerships with smart investments, and a shared vision for a net-zero future. That is what we will focus on today.

We are joined by an exceptional group of leaders from America's cities and regions to help us chart that path. They know that we all do not experience the climate crisis in the same way, and that climate risks makes social, racial, and economic inequities worse. Communities of color and working-class communities are at the greatest risk when it comes to disasters, and they often have less capacity to adapt.

In fact, just this week, The New York Times highlighted how FEMA's disaster relief efforts often helped white Americans in white communities more than communities of color, even when the amount of damage in neighborhoods is similar. That is why climate action must also create opportunities and strive for environmental justice that will protect everyday Americans, regardless of their ZIP Code and skin color.

America's mayors understand these challenges. In Madison, Wisconsin, Mayor Satya Rhodes-Conway is showing us how to invest in clean energy, while also creating prosperity in underserved communities. Through her GreenPower Initiative, the mayor has helped train and hire diverse workers to install over a megawatt of solar energy on municipal facilities.

And we have seen important progress in Los Angeles, too, where Mayor Eric Garcetti launched a strategic plan to increase community resilience and an initiative to bring the city's infrastructure into the 21st century.

In Atlanta, the Nation's tenth largest economy, Mayor Keisha Lance Bottoms has pioneered innovative resilience financing tools, and committed to 100 percent clean energy by 2035, all while working to address social inequity and climate adaptation.

And in the Upper Mississippi River Basin, represented today by Kirsten Wallace, states are already working with Federal partners to respond to the changes in rainfall and flooding.

These are just a few of the success stories across America. Now, it is time for Congress to enact ambitious, transformational legislation to help communities, large and small, protect themselves, protect their citizens, and protect their budgets. Unless Congress acts, Americans will be faced with unsafe roads, increasingly flooded neighborhoods, and worsening power outages. These costs and risks are growing. That is why we are here to pass the American Jobs Plan, which will make vital investments in resilience as we work toward fulfilling President Biden's vision of solving the climate crisis.

The American Jobs Plan gives us a historic opportunity to modernize our infrastructure and our electric grids so that we are better prepared when climate disaster strikes. And it gives us a chance to put people to work in good-paying jobs, expanding opportunity and prosperity across the board, and reducing carbon pollution that continues to warm our planet.

So I look forward to hearing from our witnesses today as they tell us what they need as they continue to build a climate-resilient community of their own. Thank you for being here, and I look forward to our conversation.

At this time, I will yield to Ranking Member Garret Graves of Louisiana for 5 minutes for his opening statement.
[The statement of Ms. Castor follows:]

**Opening Statement of Chair Kathy Castor
Hearing on “Building Climate Resilient Communities”**

Select Committee on the Climate Crisis

June 11, 2021

As prepared for delivery

As Congress continues to work on much-needed infrastructure and jobs legislation, the climate crisis keeps proving we need generational investments that will create a stronger, more resilient America. As we speak, the West is facing a record-setting mega-drought, increasing the risks of dangerous heatwaves and wildfires, and shrinking water supplies for millions of Americans.

Severe storms, persistent droughts, massive flooding, and other climate-related disasters cost our nation nearly 100 billion dollars in 2020. Just this year, Americans have also experienced a deadly and destructive winter storm in Texas, and historic floods in the Southeast. We have no time for half measures. The time to invest in resilience is now.

The building blocks of a stronger, resilient America are resilient communities and partnerships between federal, regional, state, county, local and tribal governments. It's up to Congress to build those strong partnerships with smart investments and a shared vision for a net zero future. That's what we will focus on today. We are joined by an exceptional group of leaders from America's cities and regions to help us chart that path.

We don't all experience the climate crisis in the same way. We know climate risks make social, racial, and economic inequities worse. Communities of color and working class Americans are at the greatest risk when it comes to disasters, and they often have the least capacity to adapt. Just this week, the *New York Times* highlighted how FEMA's disaster relief efforts often help white Americans and white communities more than communities of color, even when the amount of damage in neighborhoods is similar. That's why climate action must also create opportunities and strive for environmental justice that will protect every American, regardless of their zip code or their skin color.

America's mayors understand these challenges. In Madison, Wisconsin, Mayor Satya Rhodes-Conway is showing us how to invest in clean energy while also creating prosperity in underserved communities. Through her GreenPower initiative, the mayor has helped train and hire diverse workers to install over a megawatt of solar energy on municipal facilities. We've seen important progress in Los Angeles too, where Mayor Eric Garcetti launched a strategic plan to increase community resilience and an initiative to bring the city's infrastructure into the 21st century. In Atlanta, the nation's 10th largest economy, Mayor Keisha Lance Bottoms has pioneered innovative resilience-financing tools and committed to 100% clean energy by 2035, all while working to address social equity and climate adaptation. And in the upper Mississippi River basin, represented today by Kirsten Wallace, states are already working with federal partners to respond to the changes in rainfall and flooding.

These are just a few of the many success stories across America. Now it's up to Congress to enact ambitious, transformational legislation to help cities large and small protect themselves, their citizens and their budgets. Unless Congress acts, Americans will be faced with unsafe roads, increasingly flooded neighborhoods, and worsening power outages. These costs and risks are here and growing. That's why we're working to pass the American Jobs Plan, which will make vital investments in resilience as we work towards fulfilling President Biden's vision of solving the climate crisis. The American Jobs Plan gives us a historic opportunity to modernize our infrastructure and our electric grid, so that we're better prepared when climate disasters strike. And it gives us a chance to put people to work in good-paying jobs, expanding opportunity and prosperity across the board, and reducing the carbon pollution that continues to warm our planet.

I look forward to hearing from our witnesses today, as they tell us what they need to continue to build climate resilient communities. Thank you all for being here, and I look forward to our conversation.

Mr. GRAVES. Thanks, Chair Castor. Mayors, good morning. I appreciate y'all being here. Ms. Wallace as well.

Chair, thanks for your opening statement. And it is certainly an area where this whole resilience of issues that we have been trying to address, the resilience challenge is something that we very much share, being from South Louisiana.

I heard you talking about recovery programs. Just last year, I think we had seven storms, named storms that affected our states. Five of them directly affected our state.

In 2016, we had a 1,000-year flood, and just extraordinary damages. And if we are going to talk about recovery as well, the Congress came in and provided \$1.7 billion in the aftermath of that 2016 flood, I am very sad to say, very sad to say, that after more than 4 years, only \$667 million of \$1.7 billion has been offered, not granted, "offered" to flood victims, many of which still don't have rebuilt homes, and are living in conditions. This is in America. This is absolutely unacceptable.

And I want to—I am going to go on a quick little tangent. But all of my Republican and Democrat friends that are on here today, there were bills to reauthorize the Community Development Block Grant Disaster Recovery Program. And I don't know a person, and, Madam Chair, Black, White, anything, nobody is benefiting from a program that runs as inefficiently as that one. But let me get back on track here.

Look, it doesn't matter which city you are from. If you are from Atlanta, where my sister lives—Mayor, she is your constituent—from Madison, Wisconsin; Mayor Garcetti from L.A., it doesn't matter where you are from. The worst thing in the world we can do is have to continue relying upon recovering from disasters. It makes so much more sense for us to be resilient on the front end, for us to adapt, for us to make proactive investments in ensuring the resilience of our communities. And, of course, resilience means economic resilience; it means resilience in our safety; it means resilience of the ecological productivity. All of these comprise resilience. And we have seen, as the chair noted, we have seen extraordinary dollars that are often wasted—and I say "wasted"—in the aftermath of disaster, because if things could have been done on the front end, it would have been so much less expensive and, of course, would have prevented these communities from being impacted, being destroyed.

At the Federal level and, of course, being in the United States, one of the most powerful countries, or the most powerful country in the world, we often look at climate, we look at resilience at this macro level. I am really excited to have mayors here today, to have Ms. Wallace here today, because you are effectively the practitioners. You are the ones that are on the ground trying to figure out what does this look like? What does executing, what does implementing resilience look like?

And Mayor Garcetti, I will never forget your quote. I quoted you at a markup session with Mr. Huffman just yesterday, or a day before, where you came before the House Transportation Committee and said, "The Republican is only a Democrat that has been through the NEPA process." And you are exactly right.

And so, we have got—so part of this—you know, when I say, y'all are on the ground and doing the implementation or doing the execution of these macro-level programs and objectives that we discussed, we have got to talk about how we can put together a project development and execution process, a delivery process that reflects the urgency that many of you are facing.

The example that I cited in my home state of Louisiana, the fact that they have only executed on \$667 million out of \$1.7 billion that is supposed to be an emergency recovery program. This is only our own government getting in our way, revictimizing our own citizens, and that is unacceptable. If we are going to execute on infrastructure, whatever your definition of infrastructure is, if we are going to execute, specifically, on resilience, on adaptation, if we are going to work to try and prepare our energy system and grid for this next generation in these new technologies, we have got to have a project development and delivery process that reflects the urgency of the challenges that we are facing.

So I am going to give y'all—and some of our witnesses, I want you to be thinking about it, a quick little preview of what I am interested in hearing about, not necessarily in your opening statements, but at least in questioning.

So I have said it twice, y'all are the ones that are on the ground executing when people talk about these macro issues of climate, clean energy, and emissions reduction. I am really curious to hear you talk a bit about when you go in and execute, how are you looking at return on investment and determining which actions to take that you think are most powerful and are things that most benefit your own communities? But really excited to be here today and to have y'all joining us today, and I look forward to your testimony. Madam Chair, I yield back.

Ms. CASTOR. Thank you very much. Without objection, members who wish to enter opening statements into the record have 5 business days to do so.

Now, I want to welcome our witnesses. We will hear from cities and from a regional group on their efforts to confront the climate crisis, including their work to reduce climate disaster risks, foster community innovation and leadership, and resolve inequities to ensure that no community is left behind.

The chair now recognizes Representative Brownley of California to introduce the Honorable Mayor Garcetti.

Ms. BROWNLEY. Thank you, Chair Castor, for allowing me to introduce the Mayor of Los Angeles, Mayor Garcetti. Mayor Garcetti is really, truly a climate rock star. As Mayor of L.A. for the past 8 years, he has undertaken countless initiatives to make the city more climate resilient from his plan to make L.A. run on 100 percent clean energy by 2035, to his programs to provide equitable, shade, and cooling for low-income Angelenos.

Los Angeles is a microcosm of some of the worst risks posed by climate change from extreme drought to wildfires, while also being a laboratory to some of our best opportunities to fight back, including the installation of cool pavement and innovative ways to increase distributed solar.

Mayor Garcetti continues to lead with his fellow mayors, both in the United States and abroad. He created the Climate Mayors Net-

work of nearly 500 bipartisan American mayors, chairing the C-40 Cities Climate Leaders Group, which is made up of 97 of the world's mega cities.

On behalf of the Select Committee, let me also thank you, Mr. Mayor, for providing your insights over the past 2 years to our committee, particularly, as we put together our Climate Action Plan last Congress. Our committee and our country thank you for all you have done and continue to do to fight against the climate crisis.

Thank you, Madam Chair, and I yield back.

Ms. CASTOR. Thank you very much. And, next, I will recognize myself for the remainder of the introductions. We are going to have the Honorable Satya Rhodes-Conway. She is the Mayor of the City of Madison, Wisconsin. Mayor Rhodes-Conway has made climate action a central focus of her administration, launching the city's climate board plan this year to invest in resilience, expand sustainable transit, and ensure 100 percent of municipality electricity needs are met with clean energy.

Mayor Rhodes-Conway is also the current co-chair of Climate Mayors, a bipartisan network of more than 475 mayors demonstrating climate leadership across the country.

The Honorable Keisha Lance Bottoms is the Mayor of the City of Atlanta, Georgia. A former judge and city council member, Mayor Bottoms launched her One Atlanta vision for an affordable, resilient, an equitable city that catalyzes affordable housing, world-class infrastructure, and thriving neighborhoods. Through the city's Clean Energy Atlanta Plan, she has committed the Nation's 10th largest economy to transition to 100 percent clean energy by 2035.

Ms. Kirsten Wallace is the Executive Director for the Upper Mississippi River Basin Association. The association is a five-state interstate organization formed by the Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, to coordinate the states' river-related programs and policies and work with Federal agencies that have river responsibilities.

In her position, Ms. Wallace develops regional positions, advocates the states' collective interest before Congress and Federal agencies, and facilitates and fosters interagency coordination, cooperation, and communication.

So without objection, the witnesses' opening statements will be made part of the record.

With that, Mayor Garcetti, you are now recognized for 5 minutes for your presentation. Welcome.

STATEMENTS OF HON. ERIC GARCETTI, MAYOR, CITY OF LOS ANGELES, CALIFORNIA; HON. SATYA RHODES-CONWAY, MAYOR, CITY OF MADISON, WISCONSIN, AND CO-CHAIR, CLIMATE MAYORS; HON. KEISHA LANCE BOTTOMS, MAYOR, CITY OF ATLANTA, GEORGIA; AND KIRSTEN WALLACE, EXECUTIVE DIRECTOR, UPPER MISSISSIPPI RIVER BASIN ASSOCIATION

STATEMENT OF HON. ERIC GARCETTI

Mr. GARCETTI. Well, thank you so much, Chair Castor.

It is so wonderful to be with you, Ranking Member Graves, and the entire committee. One of the last times I was in D.C., prepandemic, was with you, and I enjoyed, around lunchtime, sitting down and being able to talk to a bipartisan group of folks. I am really coming from a nonpartisan or tri-partisan perspective from mayors. And it great to be with my sister mayors, Lance Bottoms and Rhodes-Conway.

And thank you, Representative Julia Brownley, who has just been a dear friend and a climate champion herself. It is good to be with you, Jared Huffman. I know Mike Levin, too, is part of this committee. California strong. And thank you, everybody, for your service. There has never been a tougher time to serve.

I will give you another quote, Representative Graves. Somebody once asked John F. Kennedy what it was like being President. He said, It is the best job in the world. Just not right now. And I think all of us in public service feel that these are the best jobs in the world. Maybe just not right now. So let's stick with it and keep serving the people together.

Look, I will cut to the chase. You know what Los Angeles, you see in the national news, how we are on the front line of this climate crisis. You see it in the fires, in the wildfires, which is now not just a season of a few months, but virtually year-round. You can feel it in the drought the chairwoman mentioned that we all are experiencing in the Western United States. You can see it in the heat that literally is taking lives. We can't forget that. Every time it gets extreme heat, we lose seniors, we lose poor folks who don't have the HVAC systems. We are seeing American lives at stake here.

And, so, we need to survive, and I would say, also, we need to compete. We see a lot of gold in them there hills. There is a lot of jobs. There is a lot of innovation. I am so proud of both Houses of Congress looking at what we can do to invest in some of the key industries and artificial intelligence and semiconductors and all the things we have seen some of our competitors doing around the world.

This is also a place where it isn't just about our health and survival. It is about the health and survival of our economy and our vision of whether, as Americans, we can be innovative. Even if you thought there wasn't a climate emergency, this would be an urgent time for us to lead in these industries, in transportation, in buildings, in energy. And so, it is great to see a bipartisan group here really looking and listening.

And I would say what we need, first and foremost, is the bold ambition of something like the American Jobs Program. I think a lot of people think that that is just Washington, D.C., with too much money raining down and telling local communities what to do. I see a different picture. I see, actually, Washington listening to what local communities are doing, states, counties, cities, regions, where they are the ones on the front lines, and they are the ones who have to come up with the solutions to save lives and to save livelihoods. And, you know, it really is cities that are leading the charge in this, but we need your leadership as well.

I will give you some examples of how that partnership occurs between local communities and the Federal Government. Our Na-

tional Renewable Energy Laboratory, based in Colorado, did the first-of-its-kind study in the world to look at how we could help Los Angeles, which owns the largest municipal utility in the country, get to 100 percent renewable power. Ten million scenarios using a supercomputer, some of the best scientists in the world. An L.A. 100 Study, which we released with the Department of Energy earlier this year, shows we can get there. And so, I announced that we would be 97 percent carbon free by the end of this decade and a hundred percent by 2035. The first big city in America to do it. We couldn't do that without local dollars and national innovation and help.

We are making unmatched investments in water infrastructure, as you read about the Hoover Dam and Lake Mead being at its lowest level ever, potentially. How we can recycle enough water that if you have seen the movie "Chinatown," it is three times more than the aqueduct we built last century to steal all that water from up North. The innovation and the technology around water innovation.

And the American Jobs Plan follows suit. It goes all in on drought-ready water systems, recycling, stormwater capture, groundwater storage. It goes all in on energy by helping us support grid updates and ramping up our resilience that were the ears, Ranking Member Graves, to extreme weather events and creating a steadier flow of clean power.

And in L.A., we recognize that buildings, too, are the biggest emitters of greenhouse gases. And the American Jobs Plan tackles that challenge, too, making historic commitments to public schools and public housing, greener buildings everywhere.

We have to look at this as an equity issue, whether it is where we plant trees for shade for that senior who can't go and get herself groceries because it is too hot. Or that student, by the time she gets home who has a headache from the heat and doesn't do her homework because she can't, and drops out of school. This is about human beings, not about programs and policies. This is not just about dollars, but this is about lives. And, so, I am so excited to be able to be a part of this conversation. I look forward to answering all of your questions and being alongside my fellow mayors and witnesses. Thank you so much.

[The statement of Mr. Garcetti follows:]

Statement of Los Angeles Mayor Eric Garcetti
Before the House Select Committee on the Climate Crisis
Hearing on "Building Climate Resilient Communities"
June 11, 2021

Introduction

Chair Castor, Ranking Member Graves, and Members of the Committee: my name is Eric Garcetti, and I serve as Mayor of Los Angeles, the second-largest city in the country and home to four million residents.

I am honored to appear before you and this Committee on behalf of my city to discuss our approach to building resilience to the ever-growing and compounding effects of climate change in our region. This task could not be more urgent, necessary, or monumental: we now live with the ever-present threat of longer wildfire seasons; with more days of extreme heat; with prolonged drought conditions—with the devastating effects of warming temperatures and rising emissions on our people's health, well-being, and quality of life.

Unfortunately, these stressors are all-too-common across our country. But our approach in L.A. is defined by big goals and bold strategies to meet them, and we hope to share best practices for the Select Committee's consideration—and to work with this Congress to tackle this crisis in a way that protects public safety, strengthens our economy, creates jobs, and lays the foundation for a more sustainable and equitable future.

Mayors and local leaders live where we work. We see the impact of our policies and our actions in our own neighborhoods every day. We experience the heatwaves and wildfires and droughts not at a distance, but up close. Because we breathe the same air and drink the same water and live with the consequences of the choices made from City Halls to state houses to the U.S. Capitol.

Los Angeles understands the magnitude of this challenge—and the potential solutions—better than nearly any other city, county, or region.

Just this year, FEMA ranked L.A. County #1 in terms of risk for disasters—the highest ranking of 3,000 counties in its National Risk Index, an assessment of vulnerability to natural disasters. That puts my city on the front lines of this crisis; it also means we are ground zero for steps to solve it. And that puts us in a position to lead the charge on resilience and infrastructure development.

We must support critical infrastructure and practice good land and vegetation management to protect us from raging wildfires. We need to cool down neighborhoods, provide shade, and ensure healthy air for Angelenos, young and old. We need to ensure local reliability for our water supply, so we don't have to pump water in from afar. And we need to focus our efforts on minimizing the risk to our most vulnerable populations, the families and households and workers who are always disproportionately impacted by shocks and stresses.

In 2019, we released L.A.'s Green New Deal to confront these demands head-on, building a global model for what local action looks like in fighting climate change and upholding the standards of the Paris Agreement. Our vision is designed to answer two fundamental questions: will our planet survive, and will there be a place for my family and me in the economy of tomorrow? Truly, we can't answer one without addressing the other, because when we act to protect the planet and preserve public health, we invest in communities, projects, and people. We expand opportunity. We plant the seeds of a steadier, more prosperous, more just future.

Climate change, public health, and economic opportunity have never been more linked than they are today, and the need to tie them together is, literally, a matter of existence or ecological devastation. This is the moment to accept that call. To build back better. To build more resilient systems with multiple benefits. Our work in Los Angeles shows how we can get this done. How we can grow jobs, protect public health, and defend the planet. And Congress has an opportunity to supercharge this work.

That's why last year, in a letter to Congressional leaders, I called for a green and equitable recovery to the COVID-19 health and economic crisis alongside hundreds of fellow Climate Mayors. Climate Mayors is a network I co-founded in 2014, composed of nearly 500 American Mayors from 48 states, Democrats and Republicans, committed to upholding the goals of the Paris Agreement. Mayor Sylvester Turner is now the chair, and his city of Houston represents another city under siege by some of the worst impacts of climate change. And today, I am proud to be sitting alongside one of the newest co-chairs of Climate Mayors, Madison Mayor Satya Rhodes-Conway. This body, Climate Mayors, responded to your RFI in November 2019 with recommendations to help communities become more resilient. Recommendations included proactive cross-agency and community collaboration in advance of disasters; building upon and expanding investments in pre-disaster resilient infrastructure; and targeting investments in low and moderate-income neighborhoods through leveraging the Community Development Block Grant.

I also chair an organization called the C40 Cities Climate Leaders Group, made up of 97 of the world's megacities, representing a quarter of the world's GDP and I can say that incorporating climate resilience into a green and equitable recovery is not something in which only we three mayors before you believe. It is held up as a global priority, endorsed by the C40 Global Mayors COVID-19 Recovery Task Force, which I established early on in the pandemic.

Now, allow me to share the L.A. story with you and then offer some lessons learned, recommendations, and appeals for partnership.

Snapshot of Los Angeles

L.A. is known for its beaches, mountains, and entertainment industry. It is also the land of earthquakes, wildfires, extreme heat, and drought. I will share three catastrophic climate events with you that lay bare our vulnerabilities and strengthen our resolve to plan and build for a very different future.

Extreme Heat

First, over the fourth of July weekend of 2018, Los Angeles experienced record-breaking heat. While heat waves may not be unique to our region, they are becoming more frequent, intense, and unpredictable. In fact, the seven hottest years in 140 years of record-keeping were the last seven. From 1976–2005, the average annual temperature was 75 degrees F. That temperature is expected to rise 2.5 degrees F by 2039, an additional 3 degrees by 2069, and another 3 degrees by 2100, as conservative estimates. The number of high heat days in Los Angeles, measured as days above 95 degrees, is expected to triple by mid-century and will be even more intense in inland areas.

On July 6, 2018, temperatures skyrocketed and brought some of our infrastructure past the brink. We are used to seeing days over 100 degrees in the Valley, but we hit 117 degrees. And what was most surprising and atypical, and a sign of the unpredictability of climate change, is that the downtown area hit 108. Cables melted, neighborhood distributing stations overloaded, and some neighborhoods lacked power for upwards of three days. The takeaway here is that the significant amount of work LADWP had been doing to maintain and upgrade infrastructure in the high heat zones of the San Fernando Valley paid off. It was those areas that hadn't yet been upgraded to withstand extreme heat—areas that we just didn't expect to get that hot—that were most affected. This was not a problem of lack of power availability. This was a problem of infrastructure coping with climate change. We have to do so much more, and not use history as our guide. Climate change has thrown out the old playbook.

Wildfire

My second example is the Saddleridge fire, sparked on October 10, 2019, which burned 8,800 acres and required LADWP crews to replace 40 poles, 4,000 feet of overhead and 150 feet of underground conductors. That fire intersected three major transmission corridors bringing power into the L.A. Basin from the Pacific Northwest, Kern County and through Victorville which reduced our imported supply by 75%, including nearly a thousand megawatts of renewables. Thankfully that day was not a high load day, and we were able to keep the lights on, but we came within 135 megawatts of rolling blackouts. For perspective, the total load for that day was 3,331, so it shows you how slim a margin under which we were able to operate. Here we learn the value of local generation inside the city, including the contribution of every solar panel on Angelenos' roofs.

2020 was the largest fire season on record in CA in terms of acres burnt, burning over 4% of the land in CA that covered 4.3 million acres. 9,000 fires burned across CA last year and we are bracing for what's in store for this year. Fire conditions are now more dangerous than they were in the past, with longer bushfire seasons, drought, drier fuels and soils, and record-breaking heat. A study published in July 2019 by the American Geophysical Union concluded that "human-caused warming has already significantly enhanced wildfire activity in California ... and will likely continue to do so in the coming decades."

Where there's fire, there's smoke. Southern California is ranked #1 by the American Lung Association in terms of ozone pollution in the air, and climate change only threatens to undo our great progress over the years. The mix of smoke and ground-level ozone produces severe issues for human respiratory systems, and the 2020 fires left Californians up and down the state unable to leave their homes nor safe from pollution inside poorly ventilated homes.

Drought

Thirdly, while L.A. has long been vulnerable to drought, we are experiencing periods of deeper, prolonged crisis, with the most recent historic drought period lasting from 2013–2017. In the first year of that drought, we experienced our seventh driest rainy season on record since 1877. During this timeframe, L.A.'s local water resources were so depleted that we had to increase our imported water by 80%, competing with water demand from the Sacramento River and the Metropolitan Water District, which were themselves at 50% below average capacity, and the Eastern Sierra Mountain snowpack that was 33% below average.

In response to the start of the drought, I asked L.A. to cut its water consumption by 20%. Thanks to the Save the Drop campaign from 2013–2017, millions of Angelenos achieved this goal by switching to California-friendly landscapes, installing cisterns, rain barrels, and high-efficiency toilets, taking shorter showers, and limiting landscape watering. And those that went above and beyond were 15 winners across each Council District were recognized as "Drop Defenders" for leading by example and saving thousands of gallons of water in the process.

This drought exposed how incredibly dependent L.A.'s water supply was on imports, and that needed to change. Since then, we have completely changed our approach to managing and educating the public about L.A.'s local stormwater, groundwater, and recycled water resources as water resilience measures in response to a changing climate.

These shifts in weather are becoming far too frequent to consider them outliers, and we are risking people's lives if we don't treat climate change as the national emergency it is. Battling climate change once felt intangible and even esoteric—it is now more clear than ever that it is here, and it demands urgent action.

Planning for a Resilient, Sustainable L.A.

Cooling Strategies

Because of the great need, we are currently investing in a number of strategies to reduce extreme heat and provide localized cooling. The scientific evidence on the effectiveness of cool roofs has been clear so in 2015 L.A. went “all in”—making cool roofs a requirement for all new residential buildings. We have also been offering consumer rebates for cool roofs for over ten years because not only does it help cool the outside temperatures, but it is also an effective energy efficiency strategy to reduce cooling needs inside a building as well.

In 2015, we set out in my first Sustainable City pLAN a commitment to innovating on cool pavement, a surface we know has great responsibility over the urban heat island effect. We partnered with industry to let them test their products at large parking lots and other areas and in 2017 we became the first major city in America to install cool pavement on a public roadway. We currently have 15 lane miles of cool pavement and we're going to add four times that amount—another 60 lane miles—of cool pavement over the next year, while continuing to innovate on materials and use cases. Last summer, the temperature differential of our cool pavement was visible using NASA and JPL thermal satellite imagery. We invite you to come visit us to see for yourself.

In addition to this innovative technology, we're also significantly investing in one of the most tried and true methods for cooling—trees. While Los Angeles has a 25% average tree canopy cover, like many urban cities, our urban forest is not equitably distributed and tree canopy cover by neighborhood can range from double that amount to just single digits. Last year we partnered with Google to help us identify our neighborhoods with the lowest tree canopy. As you can guess, low tree canopy often correlates with areas that have increased pollution, extreme heat, and greater socioeconomic vulnerability. So, we set a goal in L.A.'s Green New Deal to increase the tree canopy in those neighborhoods by 50%. It's a tall order but recognizing how crucial tree health and tree shade is to climate resilience and equity, in 2018 I hired the city's first-ever City Forest Officer to ensure we stay on track and that we pursue state and federal partnerships to meet our goals. Over the last five years we were able to leverage our local funding to receive over \$11 million from the State of California, much of which has come from the state's cap and trade program. Since January 2019, we've planted over 46,000 trees . . . that's an average of 56 new trees per day. All the while we are doing neighborhood-level assessments to determine how to reach our goals. Growing an equitable tree canopy is one of the most important investments that we can make as a city for a more cool and resilient future.

We're combining all of these strategies to transform the hottest, most vulnerable parts of our cities into Cool Neighborhoods. In these areas we are applying cool pavement along with planting new trees and ensuring that all of our transit stops with high ridership are shaded—whether naturally by trees or by custom-designed shade structures. We're also rethinking the design of some of our most basic infrastructure in order to create more shade for pedestrians and transit riders. We recently unveiled a new streetlight design that can incorporate shade panels. For Los Angeles, creating better access to shade is necessary for a more just and equitable city.

Fire Resilience

Historically, in Southern California, our primary wildfire season occurred in a relatively narrow window between September and December, when damaging Santa Ana winds would reliably fuel destructive fires throughout our brush hillsides. These fires would often collide with urban spaces, causing millions of dollars in property loss and tragic injuries and fatalities to both civilians and firefighters. But one of the biggest shifts in the past decade or so is that we no longer have a limited wildfire season. Wildfires are now a year-round threat to Los Angeles.

In one of the nation's most brush fire-prone cities, I know it's impossible to completely eradicate the threat of wildfire. We continue to face more severe climate con-

ditions and the everyday role of LAFD continues to expand while we respond to an increasing number of emergencies annually.

For years, at the scene of a brush fire, LAFD relied on a hand tool—similar to a protractor—that we would overlay on paper maps, and by factoring in weather, wind conditions, and topography we could attempt to estimate the fire’s projected path. Technology like WIFIRE, developed in San Diego, has changed the game and can, within seconds, provide an amazingly accurate predictive model of the fire’s projected spread over any number of hours and weather conditions. That model is immediately emailed and texted to the incident commanders in the field who can make informed evacuation decisions. WIFIRE also allows us to continually update the fire’s projected path in real-time as wind and weather conditions change.

Other new technologies that LAFD relies on include the Fire Integrated Real-Time Intelligence System (FIRIS) that takes infrared images and information from an aircraft orbiting over a wildfire to produce a real-time picture of the fire’s size, potential spread and behavior as well as LAFD’s Unmanned Aerial System (UAS) program, the most extensive of any fire department in the nation, which we use for mapping, assessments, and identify hotspots in very efficient and cost-efficient fashion.

Our latest innovation is a partnership with three universities, which provides links to dozens of surveillance cameras that constantly monitor brush zones throughout the State. These cameras also provide fire officials with an accurate view of the fire (and its behavior) as it develops, which enables us to make better informed long-term strategic decisions.

Energy & Buildings Resilience

Today, our local generation includes four natural-gas power plants. In 2019, I announced that we would not be repowering as originally planned the in-basin natural gas power units that use ocean cooling on our coast and just this past April I announced a ten-year acceleration to our carbon-free grid goal to 2035, the first in the country to meet the President’s target. We were able to make this bold commitment to a renewable, resilient, and affordable grid thanks to an unprecedented partnership with the National Renewable Energy Laboratory which delivered the LA100 study.

This historic study laid out multiple pathways to a 100% renewable energy grid, each of which reinforced the critical importance of local, distributed clean energy like rooftop solar, storage, demand response, and energy efficiency. Thankfully, we are not starting from scratch.

We are already the #1 solar city in the country and have been for six of the last seven years, and my sustainability plan set a goal of deploying 1,000 MW of local solar, 500 MW of demand response, doubling energy efficiency, and installing more than 28,000 vehicle chargers by 2030.

We have invested over \$336 million in the Solar Incentive Program since 1999, having conducted 34,573 installations.

And we continue to innovate on new local, distributed solar programs, such as the city’s Feed-in Tariff program, which pays solar developers a fixed favorable rate for the solar they deliver to the grid and which is now expanding to include a battery storage component, or the Shared Solar program which, by subscribing at a fixed rate, brings solar to tenant and multifamily buildings who may not have access to on-site solar. This protects a portion of a customer’s electric bill against fluctuating utility costs for up to 10 years of subscription. Shared solar electricity is supplied by new solar power plants constructed in or near the L.A. basin. LADWP will even rent a homeowner’s roof through a new Solar Rooftops program and pay that customer a fee for being able to build more local solar that provides system benefitting, clean electricity to the grid.

Maintaining, and indeed expanding, local, distributed energy is foundational to our energy transformation. It supports local reliability, saves the utility money in supporting strategic locations on the grid, and delivers clean air, local jobs, and cost savings to communities.

The cleanest and cheapest kilowatt of power is the one that is never generated. As we transition to a 100% clean power grid, we have invested heavily in energy efficiency programs and projects.

Energy efficiency is an investment that compounds dividends. A one-time rebate to replace a lightbulb, change out a fridge, or put in an electric heat pump generates savings the first year the project is done, and it keeps saving throughout the life of the equipment. Since the beginning of my term, we’ve saved customers over \$1.5 billion on their bills by investing in energy efficiency.

LADWP offers an extensive list of energy efficiency and water conservation programs for a variety of residential and commercial customers ranging from low-income, renters, landlords, owners, to small and large businesses.

In fiscal year 19–20, LADWP expended \$194 million for energy efficiency programs. These investments yield over 350 Gigawatt hours of savings annually, and achieve roughly \$56 million in bill savings for customers, and will continue year after year for the life of the measures.

For reference, saving 350 Gigawatt hours is the equivalent of taking 53,000 cars off the road for a year in terms of greenhouse gas emissions saved. The programs receiving the highest investment are Commercial Direct Install (\$47 million), LAUSD Direct Install (\$30 million), Consumer Rebate Program (\$28 million), Commercial Lighting Incentive Program (\$18 million), and AC Optimization (\$12 million).

In fiscal year 19–20, LADWP expended \$12 million for water conservation programs that included rebates for high-efficiency toilets, urinals, cooling towers, and turf replacement programs. Since the program began in 2009, LADWP's turf rebate replacement program has replaced over 51.1 million square feet of turf. This results in annual savings of over 2.33 billion gallons of water per year, which is enough water to supply almost 18,000 homes annually.

As we begin to come back to our buildings, it is critical that our municipal buildings that serve the community are thoughtfully redesigned and retrofitted to produce healthy indoor air quality while reducing transmission of virus among Angelenos. Our public spaces must be designed for a healthier future where every building is considered critical infrastructure supporting the well-being of its occupants from libraries to recreation and senior centers to schools.

Physical infrastructure must be redesigned and retrofitted to prevent the spread of COVID-19 and future pandemics. HVAC systems must be optimized and combined with other strategies such as natural light to provide optimal indoor environmental quality for occupants.

This work will enable safe reopening of public buildings, plus additional improvements. Energy efficient buildings with good air filtration offer resiliency benefits in the face of fire smoke, heat, and power outages.

Water Resilience

To address Los Angeles' historic drought, my fifth executive directive mandated that the city cut its per capita water use 20 percent by 2017; reduce its purchase of imported potable water by 50% by 2024; and create of an integrated water strategy that increases local water supplies and that improves water security in the context of climate change and seismic vulnerability. The City not only met but exceeded our 2017 reduction goal and we continue to make significant progress toward increasing the City's use of local water resources to 70% by 2035 through increased water recycling, groundwater storage, and stormwater capture.

For instance, we set a goal to recycle 100% of the City's wastewater by 2035. The program will overhaul our Hyperion Water Reclamation Plant—the city's oldest and largest wastewater treatment facility—to maximize purified recycled water and replenish the City's groundwater basins through direct potable reuse. A key component to this effort is Operation NEXT, a partnership between the Los Angeles Department of Water and Power (LADWP) and the Bureau of Sanitation (LASAN) to invest \$8 billion over the next 14 years to remake the water system of Los Angeles to convey this purified water for reuse.

The further development of LADWP's local conveyance infrastructure will allow the purified recycled water from the Hyperion Water Reclamation Plant to be transferred to groundwater basins in West Los Angeles, South Los Angeles, and the San Fernando Valley. By investing in infrastructure that transports, stores, and purifies our natural groundwater, L.A. over time will need to rely less on infrastructure in other parts of the state such as the Grant and Crowley Lake Dams in Mono County in northern California.

Altogether, the City anticipates that Operation NEXT will provide over 43,000 construction, operations, design, engineering, and maintenance jobs from now until 2035. LADWP and LASAN are currently preparing a programmatic Environmental Impact report for the Hyperion Water Reclamation Plant and constructing a membrane bioreactor pilot facility that will recycle 1 million gallons of wastewater per day.

L.A. has also invested in stormwater capture infrastructure as a way to increase local water resources. In 2004, Angelenos passed a landmark bond called Proposition O that invested \$500 million in multi-benefit stormwater capture projects. LADWP and LASAN continue to construct more stormwater capture projects throughout the city largely due to annual funding from L.A. County's Safe, Clean

Water Program, which provides roughly \$285 million to the County, with an average of \$80 million annually coming to the City. These new stormwater capture projects such as parks, street medians, and spreading grounds have provided multiple environmental and community benefits such as improved water quality, mitigated flood risks, green and open space, green jobs, and environmental justice to historically disadvantaged communities.

When we talk about water resilience, it is usually focused on drought and water scarcity. However, the sheer amount of energy used to treat and transport water, and the climate impacts of those actions should not be overlooked. The water-energy relationship is especially important in California, where roughly 20% of statewide electricity and 30% of non-power plant natural gas is consumed to move, treat, and heat water. This is another reason why focusing on enhancing local water resources makes sense.

Recommendations to Congress

This brings me to my recommendations to this committee. Some of these can also be found in the Accelerator for America Infrastructure Playbook.

The first will come as no surprise: we need more funding.

This is at the heart of the President's American Jobs Plan—to launch national programs that support good-paying jobs to rebuild America.

In particular, funding for both capital costs and the operation and maintenance of water recycling and stormwater capture projects will transform wastewater treatment facilities and distribution systems to ensure cities can capture the rainfall they receive, recycle water, and decrease dependency on imported water. These stormwater projects are expected to support 18,000 jobs in L.A. by 2050.

Additionally, increased funding to upgrade the grid to support distributed solar, storage and electric vehicle installations, as well as funding for the technologies themselves, is needed to sustain communities' access to affordable, reliable, clean energy in the face of extreme events. These projects are expected to support 45,000 jobs in L.A. by 2022.

For example, we plan to increase rooftop solar and storage on city facilities and carparks in our parking lots. These are small but mighty projects that deliver resilience at scale while providing meaningful work for our local labor force. These projects are expected to support 6,500 jobs in L.A. by 2025. Critical City facilities, like those at LAX are moving forward on building a microgrid to improve power quality, reliability, and resilience, to safeguard their operations.

We need to think of all of our buildings as critical infrastructure that need to be supported in the face of climate change. People need somewhere to go when it's too hot, when it's too smokey, or when they lose power. Our nation's schools, libraries, rec centers, and hospitals must be supported to provide these services in the face of climate change. We therefore must enhance existing building retrofit and weatherization programs to encourage deep energy efficiency interventions that support HVAC retrofits, strong air filtration, and electrification to improve indoor air quality. These actions will in turn create jobs, protect health and safety, reduce building operating costs, while also mitigating climate change by installing zero-emission energy sources and improving building energy efficiency.

I would strongly suggest Congress support the spirit of the Energy Efficiency and Conservation Block Grant in the AJP. In 2009, this effort provided \$3.2 billion in block grants to cities, communities, states, territories, and tribes to develop and implement energy efficiency projects which in turn created local jobs.

This was the largest direct investment in renewable energy and building retrofit projects in history. But with the challenge before us to reopen public buildings safely, the time is right for an even larger investment that includes consideration of indoor air quality through the use of efficient HVAC systems, which will not only protect against COVID-19 transmission, but also protect people from extreme heat-induced poor air quality or wildfire-induced smoke hazards.

Funding to enhance cool neighborhood programs will help cities to plant shade trees and install cool pavement to keep temperatures from rising. When combined at the neighborhood level, these investments build upon each other to greatly increase their cooling impacts. Together with funding for shade structures, we can see measurable impacts on temperature and comfort at the neighborhood level in weeks rather than decades.

It is important to note that funding for tree maintenance is a critical component. Planting the tree is only half the battle. We must ensure those trees survive and grow to their full potential by providing adequate watering and maintenance for trees once they are in the ground. This maintenance is the perfect opportunity to build out green jobs and training for entry-level workers. Every million dollars invested in planting and maintaining trees creates up to two dozen jobs. Planting and

maintaining 90,000 trees in L.A. will support 2,000 jobs and will also provide 61.3 million square feet of shade at maturity.

A national green bank or federal support for state and local bond issuance and refinancing could be effective ways to scale these investments and overcome the challenge cities have of not being able to monetize tax credits.

Much of these investments can be offset by eliminating all fossil fuel subsidies.

My second recommendation centers on workforce development.

We should focus our efforts on creating a national training center for infrastructure, like that of the National Transit Institute, to set clear national objectives and establish a comprehensive strategy by providing resources, thought leadership, and training standards.

Further, a national training center for infrastructure should support programs that will provide minority and low-income communities with quality education and training to excel in emerging practices around resilience in the built environment where access to training and education is limited.

We need to expand these training opportunities now to ensure we have a workforce ready and able to lead this transformation of our built environment.

That brings me to my third recommendation, which is advancing equity.

In 2016, LADWP established the first of its kind *equity metrics* to track, measure, and report how its programs are benefiting customers, particularly our most vulnerable. This type of approach to measure success through the lens of equity could help inform federal programs and ensure success of the President's Justice40 directive.

We must reduce low-income families' energy and water burden and ensure they have access to clean air and clean water.

At the same time, we should expect subsidized housing to meet the highest efficiency standards and include an efficiency metric for the low-income housing tax credit. Our poorest households should not be disproportionately burdened by energy needs such as air conditioning.

Conclusion

As I stated at the outset, L.A. faces a variety of cascading climate threats that impact public health and our economic well-being. The good news is, we have the tools and strategies to mitigate the worst effects of extreme weather through cooling down neighborhoods, hardening infrastructure and being good stewards of our resources. Along the way, ample good jobs will be created to transform our city and region to improve livability for future generations.

Thank you for shining a light on this pivotal moment for our nation and the world. We must grab hold of this chance to deliver resilience, economic opportunity, racial and environmental justice, and a climate safe planet.

Thank you once again, Chair Castor and Ranking Member Graves, for allowing me to be here today. I look forward to partnering with you to build up resilient and sustainable communities across the U.S.A.

Ms. CASTOR. Thank you, Mayor. Next, Mayor Rhodes-Conway, you are recognized for 5 minutes.

STATEMENT OF HON. SATYA RHODES-CONWAY

Ms. RHODES-CONWAY. Chair Castor, Ranking Member Graves, thank you so much for inviting me to discuss the importance of climate action. I am proud to be the Mayor of Madison, Wisconsin, which is the home to over a quarter million people, the Wisconsin state capital, and the flagship campus of the University of Wisconsin. I also serve, as you have heard, as Co-Chair of Climate Mayors, a network of mayors representing 476 U.S. cities who are committed to this work. And, Chair Castor, we really appreciate your engagement with us last year.

Cities are struggling with the challenges, including the global pandemic climate change, and a legacy of centuries of inequitable policymaking. But we have the opportunity to recover and rebuild in a more just, resilient, and sustainable way. We need the support of the Federal Government now to overcome barriers, resource innovation, and scale solutions. Our changing climate exacerbates

preexisting challenges and creates new risks for every city in the United States.

Madison is facing warmer summers, more precipitation, and more extreme storms, among other impacts. Warmer summers create dangerous urban heat island impacts. And the heat is the leading cause of weather-related deaths. In Dane County, where Madison is located, we saw a 47 percent increase in heat-related emergency room visits between 2010 and 2014. And by mid-century, we expect the number of extremely hot days to triple, and the number of extremely hot nights to quadruple.

Many older rental buildings in Wisconsin lack air conditioning, they have poor insulation, and they soak in heat through asphalt roofs. The technologies exist to reduce these heat impacts. And we have started a program in Madison to make energy efficient upgrades in apartment buildings. But without additional resources, we can only reach a fraction of the apartments in Madison.

And these buildings need more than just energy upgrades. The wetter climate leads to wetter basements, contributing to mold growth and respiratory problems. And while children suffer from asthma, parents worry about retribution from landlords if they report that mold. We are investigating ways to add mold remediation to our programs, but, again, that will take resources.

Madison is experiencing more rain and more severe storms. Wisconsin has 15 percent more rainfall annually now than in 1950. And precipitation is projected to increase by another 15 percent by mid-century. The west side of Madison experienced a 1,000-year flood in 2018, which caused \$154 million in damage in our county.

That 2018 flood was a wake-up call. We are now undertaking 23 watershed studies across the city to determine how to prevent persistent flooding, and mitigate catastrophic events. We have identified \$75 million worth of necessary projects in just the first four studies. To prevent flooding, we must make major investments in infiltration, storage, and stormwater system capacity.

I believe our best solutions to the crisis are those that address climate change holistically. Mitigating our risks while supporting our city in both local and national economy, we must build infrastructure that withstands the impact of a changing climate, and we must ensure that our residents have resources to manage stressors like higher temperature and crises like flooding in their homes and communities.

All these solutions require extensive resources. The Federal Government support for these local efforts could be transformational. Cities would welcome investments through existing funding streams, including DOE's Weatherization Assistance Program and the Energy Efficiency Conservation Block Grant Program, HUD's Community Development Block Grant Program, Sustainable Community Initiatives, and HOME Investment Partnership, the FTE Bus and Bus Facilities Program, and the Capital Investment Grant Program.

But policymakers should also update these programs to make these funds more flexible, or create new programs that enable cities to address a multitude of needs without silos.

Climate change is the defining challenge of our time. Cities need the Federal Government to support our ability to innovate, to clear

away barriers, and to bring viable solutions to scale. We have less than a decade to make a difference. Thank you for your Congressional Action Plan For a Clean Energy Economy, thank you for your time today, but thank you more for your action.

[The statement of Ms. Rhodes-Conway follows:]

Testimony of
The Honorable Satya Rhodes-Conway
Mayor of Madison Wisconsin and Co-Chair of Climate Mayors

Submitted to
The House Select Committee on the Climate Crisis
for the
“Building Climate Resilient Communities” Hearing
June 11, 2021

Thank you for inviting me to talk about the importance of climate action and climate resilience to cities, and specifically to Madison. I am proud to be the Mayor of Madison, Wisconsin—a city with a strong sense of community, a growing economy, and great natural amenities. Madison is a mid-sized city of over 250,000 people; it is home to the Wisconsin State Capitol, the flagship campus of the University of Wisconsin, and it is situated between numerous lakes in the middle of dairy country.

Madison is a city that often shows up on top ten lists for its livability, but those nationally recognized amenities are not shared equally amongst all of our residents. In fact, parts of our community experience a disproportionate burden of environmental risks and injustices. A 2013 study has shown that Dane County, where Madison resides, ranks among the worst counties for racial disparities.¹ This is equally true for the impacts of climate change. We have work to do to protect our residents and ensure that assets and opportunities are accessible to all.

Madison is a growing city. While growth is not a bad thing, it does present challenges—largely related to increasing housing costs and traffic congestion. One of my primary goals as Mayor is to ensure Madison can grow without becoming unaffordable, and without crippling traffic congestion. To that end, we are working hard to build a bus rapid transit system in Madison with support from federal partners. We are also working hard to increase our housing supply, including affordable housing in particular.

Our community is also contending with a changing climate that exacerbates pre-existing challenges and creates new risks. I’ll speak more about that in a moment.

I want to first note that I serve as a Co-Chair of Climate Mayors, a national network of mayors representing 476 U.S. cities who have committed to fighting climate change. I work closely with our Chair, Mayor Sylvester Turner of Houston, and Co-Chair, Mayor Kate Gallego of Phoenix. Together, we seek to advance ambitious policies locally and nationally to address one of the greatest challenges of our time.

The past year has been daunting for many of our communities. But we have an incredible opportunity to recover and rebuild in a more resilient and sustainable way that will benefit millions of Americans in the near-term and generations to come.

In July 2020, Climate Mayors launched the National Dialogue on Green and Equitable Recovery series, a livestream leadership series highlighting the role of mayors in addressing the critical need for a “green and equitable recovery.” Thank you, Chair Castor, for participating in the first event focused on the Southeast region.

As a result of the initiative, Climate Mayors just released its *Green and Equitable Recovery* report this April, capturing the key messages and priorities identified during these discussions. The report provides a roadmap for what cities can and should be doing to ensure an economic recovery rooted in sustainability and equity, but it also underscores the important role the federal government plays in amplifying and expanding cities’ efforts.

¹ Wisconsin Council on Children & Families. *Race to Equity: A Baseline Report on the State of Racial Disparities in Dane County*. 2013. <http://racetoequity.net/wp-content/uploads/2016/11/WCCF-R2E-Report.pdf>

I have attached highlights from the report to this statement, and included a link to the full report.²

We encourage policymakers to look to local governments to identify meaningful solutions to these shared challenges and scale those programs as we work to rebuild our economy and infrastructure in a way that is resilient to future climate shocks.

Cities are dealing with the impacts of our changing climate now, and we need the support of the federal government now to overcome barriers, resource innovation, and scale solutions. It is critical that we invest in a broad range of infrastructure, but it is equally important that we design that infrastructure for the climate of the future, not the climate of the past—and in a manner that avoids further harm to our climate. To do this, we need a true partnership between the federal government and local governments. Local government is closest to the impacts of climate change, and we are ready and able to identify the most effective ways to deploy resources to support resilience in our communities.

Climate Impacts in Madison

In Madison, the primary climate impacts of concern to our community are related to heat and rain. We have warmer summers and warmer winters, and therefore we experience more precipitation and more intense storms. These are not projections for the future: these impacts are already here.

Warmer winters mean more freeze/thaw cycles and more damage to pavement, requiring more frequent, costly repairs to our streets. They also mean more ice storms, creating dangerous conditions for transportation and presenting a challenge to city workers that are skilled at removing snow but still adapting to dealing with ice.

Warmer summers increase the dangerous urban heat island effect, which impacts Madison like so many other cities. It's important to note that this is not just a factor of external temperature, but temperature relative to our bodies' acclimation. The impacts people feel from heat are dependent on whether the buildings and communities they inhabit were created to withstand increasing temperature extremes.

In Wisconsin, not all homes are built with air conditioning, especially in the rental housing that comprises more than half of our housing stock locally. We also have a lot of dark asphalt shingle roofs that soak in the heat. Our temperatures swing a lot season to season, but also sometimes week to week, which is a challenge for people trying to acclimate to the temperature. Because of those aforementioned factors, the most heat-sensitive cities in the U.S. are in the Midwest and Northeast.³ Heat is the leading cause of weather-related deaths and it exacerbates other health issues. Here in Dane County, we saw a 47% increase in heat-related emergency room visits from 2010 to 2014.⁴

Heat is just one threat to our public health. As policymakers, we must anticipate how climate change will interact with other environmental stressors to avoid these adverse impacts, including worsening health outcomes, injuries, or even premature deaths.

As we measure recent climatic changes and examine future projections in Wisconsin, we look to the Wisconsin Initiative on Climate Change Impacts at the University of Wisconsin, and I've included a link to their 2021 report.⁵ One of the more concerning projections related to summertime heat increases isn't related to daytime heat, but nighttime heat. Our summer nights are projected to stay warmer, which will limit the ability of our bodies and our buildings to cool down. This is linked to more severe health impacts of heat that we see. By mid-century, the number of extremely hot days we see is expected to triple, and the number of extremely hot nights is expected to quadruple.

In terms of rainfall and storms, we are experiencing more flooding locally. While our Midwestern city does not contend with hurricanes or sea level rise, we are now experiencing more rain and more severe storms. Wisconsin experiences about 15% more rainfall annually than it did in 1950. The 2010s were the wettest decade on record in Wisconsin. And our precipitation is projected to increase another 5–15% by mid-century.

A wetter climate coupled with an increase in extreme rain events can wreak extreme havoc on our city. This was most prominent in Madison in August of 2018 when nearly 12 inches of rain fell west of Madison in a single day. Some places re-

²Climate Mayors Green and Equitable Recovery Synthesis Report. 2021. https://climatemayors.org/wp-content/uploads/2021/04/ClimateMayors_SynthesisReport.pdf

³Wisconsin Heat Network. *Major Heat Impacts*.

⁴Ibid.

⁵Wisconsin Initiative on Climate Change Impacts. *Report to the Governor's Task Force on Climate Change*. July 31, 2020. <https://wicci.wisc.edu/wp-content/uploads/wicci-report-to-governors-task-force.pdf>

ported 14–15 inches. For context, the National Weather Service defines around 10 inches as a 1000-year flood.⁶ Flood damage from storms in late August and early September that year caused \$154 million in damage in the County.⁷ And as terrible as that was, it was pure luck that these storms didn't hit the downtown and east side, which is on lower land situated between two lakes. The flood damage there would have been much, much worse.

There are other climate-related impacts that Wisconsinites are facing, but I will focus my remarks on these threats.

Resilience Strategy

Now, turning to resilience, I think of our strategy in two ways. It is in part related to physical solutions and systems—we need our roads, buildings, parks, and ecosystems to withstand the impacts of more intense storms, more flooding, and hotter summers. But we also need our people and neighborhoods to be able to survive and thrive while dealing with these impacts. There are many components to that work, but at its heart, it's about ensuring that our residents have stability and the resources they need to manage increasingly regular stressors (like higher temperatures) and the increasing risk of a crisis (like flooding) to their home, family, or community.

I believe our best solutions to the crisis are those that address climate change holistically—mitigating our risks, while supporting our city and both our local and national economy. I want to talk about how Madison is addressing this challenge, and how I believe we could leverage federal support to go further and increase the benefits of the work. And while my remarks are focused on our city, I think these examples are relevant to many cities, as local officials are all trying to innovate and seeking solutions to address multiple problems at once.

1. Flood protection investments for our communities

The 2018 flooding was a wake-up call for us in Madison. We are now undertaking 23 individual watershed studies to determine what we need citywide to avoid both persistent flooding problems and catastrophic events. We have finished a handful of the 23 studies, and we already have a very costly list of necessary infrastructure investments, with \$75 million of important projects identified in the first four studies. And the other assessments are only just getting started.

The bottom line is that our entire stormwater system was built to carry less water than we now need it to carry; unless we make some major investments in infiltration, storage and increased stormwater system capacity, we will not be able to prevent serious flooding. I have included a link to our Flash Flooding Resilience website⁸ for some visuals of just how many of our pipes are over 60 years old, installed when we could not have imagined we would be seeing these stormwater flows.

We need to make major infrastructure investments for handling stormwater. We just updated our stormwater requirements for new construction so that our urban development will be responding to floods of the future, not the floods of the past. And we are investing in and testing green solutions and green infrastructure with the USGS right now to learn more about its multiple benefits.

This is an area where the federal government has long played a role—in supporting infrastructure investments. While we need stormwater pipes and detention ponds, a more holistic solution and expansive view of infrastructure could help us achieve more. For example, green infrastructure like bioswales, raingardens, trees, compost-amended soils, and pervious pavements can help retain and infiltrate water on site with reduced runoff. This is a way to manage our daily stormwater while increasing biodiversity, reducing urban heat island effects, and improving surface water quality.

Further, we need the federal government to reclaim its historic role in funding basic infrastructure via grants to local governments, not just low interest loans. These investments will create good, family supporting jobs, boost our economy, and improve our climate resilience.

⁶Wright, Dan. What WisContext. *What Could Happen Next Time Madison Gets Hit by Extreme Rainfall*. October 2, 2018. <https://www.wiscontext.org/what-could-happen-next-time-madison-gets-hit-extreme-rainfall>

⁷Novak, Bill. Wisconsin State Journal. *Flood Damage Exceeds \$154 Million in Dane County, Officials Say*. Sept. 5, 2018. https://madison.com/wsj/weather/flood-damage-exceeds-154-million-in-dane-county-officials-say/article_0635e674-c057-57a0-a888-fe2983367b76.html

⁸City of Madison Flash Flooding Resilience website: <https://cityofmadison.maps.arcgis.com/apps/Cascade/index.html?appid=410417d0691a4166977b9fa6223536e9>

2. Lake impacts of more runoff from storms

Madison sits on a thin isthmus of land between two lakes—two of several lakes in the region. These lakes are central to Madison’s identity, our quality of life, and our economy. We have numerous waterfront parks and beaches, a healthy community of people fishing, boating and kayaking, and we have a tourism economy that is dependent on our lakes. They are a major part of what makes Madison such a beautiful and livable city.

Heavier rainstorms and warmer temperatures impact the quality of our lake water. Our lakes have long had a nutrient-loading problem, and more algae growth than they should have. We have been combatting this in both urban areas and rural areas in many ways for many years.

In Madison, a lot of the urban phosphorus in our stormwater outlets comes from fall leaves. We have developed an initiative and campaign encouraging people to mulch their leaves or collect them alongside the street where we have trucks that pick them up. We help support a regional partnership called Yahara WINS, which helps reduce phosphorus throughout the watershed and beyond the city limits.

Unfortunately, the progress this partnership anticipated has been virtually erased. Not because more nutrients are in the environment, but because so many more of those nutrients are finding their way into the rivers and lakes due to the increase in severe storms we are experiencing. Local studies indicate that if precipitation had remained constant over the last 30 years, we could have expected a 36% reduction on the amount of phosphorus flowing into our largest lake, Lake Mendota.⁹ But given the water increases we have seen and the associated runoff, phosphorus loading has increased by about 15%.¹⁰

By the first week of June this year—before school was even out—we had to close three beaches or lake access points in Madison due to blue-green algae, which is dangerous and potentially toxic. But it impacts more than beaches—the dying algae use up the oxygen in the lake and create dead zones. This impacts our lake ecosystems, fishing, and water-based recreation and tourism, which hurts the economy overall.

It is a challenging problem without quick fixes, but we know there is more we can do. We can continue doing our part in Madison, and our farmers also need more resources for nutrient management. A major source of the nutrient-loading in the lakes is manure from surrounding farms. We greatly value our farms in Wisconsin, and we want to help our farms thrive. We need solutions that help our farms and allow our lakes to thrive. Dane County and numerous partners have been working to support that for years by supporting best practices for manure management, conservation farming, and building manure digesters.

This is an opportunity to generate renewable energy as well. Dane County has invested in a renewable natural gas (RNG) processing and offloading site¹¹ to accept RNG from private manure digesters, where it can be injected right into a pipeline. Projects like these support farmers, help support clean lakes and rivers, and create local renewable energy, which is a revenue source as well. We need to double-down on these strategies with continued research, education, and investment.

3. Our community is at risk of heat- and mold-related health impacts

As I mentioned earlier, Madison is experiencing urban heat island effects, like so many other cities, posing a public health risk; extreme or extended heat is linked to heat-related illness and exacerbating chronic illness. Again, many older rental buildings lack air conditioning, have poor insulation, and soak in heat through their dark, asphalt roofs. Improvements to our building stock could improve health outcomes and reduce greenhouse gas emissions.

Employing reflective roof technologies can reduce heat impacts in homes and cities.¹² Adding electric heat (and cool) pumps are a logical, and increasingly common, solution. By installing heat pumps, we could provide people with energy efficient cooling in the summer, and offer efficient heating in the winter. And because they are electric, they reduce the health risks associated with carbon monoxide, and they can connect to renewable energy.

⁹Fundamental Concepts on Water Quality of the Yahara Chain of Lakes (Mendota, Monona, Wingra, Waubesa, and Kegonsa). Yahara CLEAN 3.0 Steering Team, June 2020.

¹⁰Yahara CLEAN Phosphorus Reduction Strategy Recommendations. Yahara CLEAN 3.0 Steering Team, March 2021.

¹¹Renewable Natural Gas Processing and Offloading Station. Dane County Department of Waste and Renewables. <https://landfill.countyofdane.com/services/Renewable-Natural-Gas>

¹²Yale Environment 360. *Urban Heat: Can White Roofs Help Cool World’s Warming Cities?* March 7, 2018.

<https://e360.yale.edu/features/urban-heat-can-white-roofs-help-cool-the-worlds-warming-cities>

Our wetter climate is also leading to wetter basements, which leads to mold growth. Exposure to mold can cause respiratory problems. We've heard stories from nurses that see children suffering from asthma. Their parents talk about the mold issues in their building; they worry that if they report it, their landlord won't renew their lease. And so they live with the impact instead, and their families suffer. This is a public health problem with disparate impacts, affecting the most vulnerable and those with fewer resources to address the problem.

Whether we are talking about painting rooftops, installing cooling, or dealing with mold, the City's toolbox to address this systematically is small. By state law, we aren't allowed to set local energy codes, and we aren't allowed to proactively or regularly inspect rental property unless responding to a complaint. What we can do—and are doing—is to develop a voluntary incentive program to persuade landlords to take on building improvements. This work started with local partners focused on making energy and water efficiency improvements to lower- and moderately-priced apartment buildings. These are non-subsidized buildings that may not qualify for low-income weatherization support, but whose renters nonetheless are paying below-market rents in housing that is often in need of upgrades.

As we move forward with the energy and water efficiency program, we are now looking at the feasibility of expanding activities to cover mold and lead issues in the buildings, as well as adding solar PV to their roofs. This is a great opportunity to conduct work that provides multiple benefits—improving efficiency, lowering utility bills, creating more comfortable homes, improving indoor air quality, and improving health outcomes for residents. These programs are necessary to improve our housing stock and ensure it will be resilient in the face of climate impacts. And we support local jobs in the trades to conduct all of this work.

We are also focused on our commercial buildings and municipal facilities. For example, the City runs a Green Power Solar Workforce Training Program to train and hire local workers from underrepresented populations. To date, our Green Power trainees have helped install 1 MW of solar on our municipal facilities. We hope to scale up this program to add 1 MW annually by 2022 to help achieve our municipal goal of 100% renewable energy by 2030.

These programs are intensive efforts that require significant resources and create jobs with family-supporting wages. Funding for energy efficiency, renewable energy, technical assistance, and education would be appreciated by local officials. The federal government's support for these efforts could be very impactful, and I think it would be most impactful if oriented in consideration of the following two points:

1. When considering what infrastructure means, please consider the work we do in our building stock as core infrastructure work in our cities. We need that expansive perspective of what cities need to be ready for the 21st century impacts of climate change.
2. The most efficient solutions are ones that address multiple problems and create multiple benefits. Federal funding is always appreciated. But if it is singularly-focused, we can't solve the full scale of the problem. We can't install insulation in an attic while ignoring the leaky roof. We shouldn't send contractors to address energy efficiency and ignore water efficiency or the opportunity to install solar. And we should never ignore serious impacts to the health of our residents, whether from heat, mold, or lead. Cities always work at the nexus of multiple issues, and we need federal grants and other programs to think in those broad terms as well.

Local governments would welcome investments through existing federal funding streams including:

- The Weatherization Assistance Program administered by the Department of Energy;
- The Community Development Block Grant Program, the Sustainable Communities Initiatives, and the HOME Investment Partnership administered by the Department of Housing and Urban Development; and
- The Bus and Bus Facilities Program and the Capital Investment Grant Program administered by the Department of Transportation, which have provided invaluable resources to our community as we implement our first Bus Rapid Transit (BRT) system.

Policymakers should also explore reforms that enhance flexibility of these funds or create new programs that enable us to address the multitude of climate-focused needs. For example, any efforts to weatherize homes or retrofit for energy efficiency should also include installing renewable energy sources like solar and geothermal, and on electrifying building systems. Any program to create or preserve affordable housing should also ensure affordable utility bills and healthy indoor air quality. Any investment in transit should be scaled to ensure vehicles are zero-emission.

As discussions focused on infrastructure progress, I applaud proposed investments in electric vehicle charging infrastructure, carbon emissions reduction strategies, building retrofits, and other resilience programs. I also applaud the increased levels of funding for transit that were included in the INVEST in America Act. The restoration of the Energy Efficiency and Conservation Block Grant Program administered by the Department of Energy would also enable local jurisdictions to make consequential investments in sustainability.

Finally, federal investments in workforce development and training can help create new career pathways for those historically underrepresented in these sectors or dislocated by the pandemic. This is a critical component to climate resilience, and one where cities need your support.

Cities across this country are trying to address multiple problems at once, and I would urge the federal government to consider shaping their support to local governments in ways that recognize the greater wins possible by working across disciplines and toward multiple goals.

I hope from the testimony today, you are hearing a few key themes:

- The changing climate is impacting our cities and our residents in multiple ways, and cities have no choice but to come up with innovative solutions.
- The negative impacts of climate change are borne disproportionately by low income and BIPOC communities, so we must focus our efforts in these communities.
- Cities need federal partnership to scale our efforts, and we are eager to partner.
- The best solutions are designed to address multiple problems and yield multiple benefits, and federal action—whether it be policy, funding, or technical assistance—would be most helpful if also designed with flexible eligible activities.

Climate change is the defining challenge of our time. We must respond accordingly. Cities need the federal government to support our ability to innovate, to clear away barriers, and to bring viable solutions to scale. We have less than a decade to make a difference. Thank you for your time today, but thank you more for your action.

Attachment:

Summary Points of the Climate Mayors Green and Equitable Recovery Report

General

- We are at a historic, pivotal moment. We can rebuild the status quo or we can build something better.
- We have an incredible opportunity to generate sustainable and equitable economic growth while reducing greenhouse gases—and we must seize it.
- Cities across America have long demonstrated that economic growth and environmental stewardship go hand in hand.
- Now, the federal government can show the world that investments in a zero-carbon economy are investments in our future workforce and the well-being of generations.
- The climate crisis cannot be separated from the ongoing effort to achieve health, economic, and racial justice. This moment demands that we accelerate our efforts to drive ambitious, systemic and equitable progress.
- We encourage policymakers to look to local governments and communities to find meaningful solutions to these shared challenges.
- If fully funded, effectively implemented, and flexible enough to be adapted locally, the policies highlighted in the Green and Equitable Recovery report will have a lasting impact on our ability to meet the scope and scale of the challenges we face.

Guiding Principles for a Green Recovery

- *Build for a Better Future:* Returning to the pre-Covid-19 status quo will not help us meet the challenges of a world increasingly destabilized by climate change. We must strengthen our resolve and ambition to reduce emissions and increase the resilience of America's communities.
- *Lead with Equity:* Federal investments in our municipalities must prioritize historically disadvantaged and frontline communities—including people of color and low-income households—who are disproportionately hurt by both climate change and Covid-19.
- *Prioritize Multiple Benefits:* The same investments that will help us mitigate and adapt to climate change will also create high-quality jobs that strengthen social cohesion, improve health outcomes in our cities and towns, and can withstand future economic downturns.

Workforce

- As we accelerate the nation’s transition to a clean energy economy, we need to ensure that our fossil fuel workers—who have served as our nation’s energy and economic backbone—are continually supported.
- We must directly invest in communities currently reliant on coal, oil, and gas jobs, and provide meaningful support, sustainable funding, and workforce training programs, as well as practical guidance to ensure these workers secure a central role in a decarbonized economy.
- Transition plans are not one-size-fits-all. Local officials are best positioned to work with community-based leaders to design a plan that meets their unique needs.

Cities-Federal Partnership

- The federal government can use its considerable financial and technical resources to act as a catalyst for additional local action by providing funding and capacity building.
- Mayors have the best assessment of what their constituents need. They therefore are well-positioned to implement a tailored approach to policies and programs to ensure resources reach the most vulnerable communities.

Transit and Mobility

- Federal transportation continues to support carbon-intensive highway expansions and new roads that lead to increased emissions and fewer jobs.
- Instead, policymakers should ensure that infrastructure and transportation funds are directed to local governments, and should prioritize public transit, active transportation modes, electric vehicle (EV) infrastructure deployment, and improving existing roads.
- This will result in safer mobility, less local pollution, and better access to economic opportunities and essential services.

Buildings

- In order to reach our climate goals, buildings need to swiftly move toward becoming highly efficient, grid-interactive, and all-electric.
- America’s existing commercial and residential building stock cannot be neglected. Two-thirds today’s building will still stand in 2050, necessitating deep retrofits that significantly reduce energy use, increase efficiency, and elevate the quality of life for those inside and out.
- Increasing efficiency and “futureproofing” our buildings to better withstand disasters and extreme weather will pay huge dividends for our communities and create numerous meaningful jobs.

Renewables

- To achieve clean electricity by 2035, we need to accelerate the transition to renewable energy.
- As mayors, we are on the frontlines; many cities have already committed to 100% renewable energy goals.
- By pursuing multifaceted strategies to further accelerate local decarbonization efforts within our communities, we can grow a green economy and workforce, and enable all our residents to share in the benefits of renewable energy.
- Mayors must be at the forefront of deploying projects in our cities and engaging with utilities and regulators to create a cleaner grid to build a better, more equitable future.

Nature-based Solutions

- Mayors are investing in urban greening initiatives that produce multiple benefits in mitigating carbon emissions and adapting to a warming planet.
- As cities grow, Mayors are embracing efforts to enhance and expand natural ecosystems, greenspaces, and tree canopy to improve residents’ lives while increasing resilience.
- Enhancing natural systems sequesters carbon, improves air quality, reduces the heat-island effect, mitigates flooding, and reduces the potential for landslides.
- Investments in “green infrastructure” can often offset the need for more costly investments in “gray infrastructure.”

Conclusion

- The success stories of Climate Mayors across the country demonstrate that environmental stewardship, fiscal responsibility, and economic growth are not mutually exclusive.

- But city and local budgets are under enormous strain as a result of lost tax and fee revenue, combined with emergency spending related to COVID–19.
- Simultaneously, communities across the country are facing the devastating effects of climate change.
- Direct, flexible funding to city and local governments is crucial as we pursue a sustainable economic recovery.
- *The Climate Mayors National Dialogue on Green and Equitable Recovery* exemplifies mayors' commitments to a sustainable and just recovery but also emphasizes the absolute need for federal funding and support to effectively meet the scope and scale of the challenge.
- Federal commitment is essential to fully meet this moment and put the U.S. on a path to limit warming to 1.5°C.
- Building back a green economy led by local governments and supported by the federal government is a critical first step in achieving our climate goals, while ensuring a just, equitable, and sustainable economic recovery that is resilient for generations to come.

Ms. CASTOR. Thank you very much, Mayor. Next, we will go to Mayor Bottoms. Welcome. You are recognized for 5 minutes.

STATEMENT OF HON. KEISHA LANCE BOTTOMS

Ms. BOTTOMS. Thank you, Madam Chair, and distinguished members of the committee, and to my fellow mayors, it is an honor to join you today.

Atlanta is the center of a metropolitan area of more than 6 million people. It is often said that all roads lead through Atlanta. And if you visit, you will be faced with that harsh reality when you hit our infamous bumper-to-bumper traffic, probably only second to traffic that you will experience in Los Angeles. It is a visual reminder of just how concentrated our population has become. In fact, 83 percent of Americans now live in urban centers. As such, cities like Atlanta can serve as a microcosm of issues affecting the entire country, issues like climate change.

Over the past year, we have all faced unprecedented challenges: a global pandemic, punctuated by racial justice reckoning, and economic downturns, spikes in crime, and a once-in-a-lifetime election. No one escaped 2020 unscathed. And for that reason, many have called COVID–19 the great equalizer. But I don't believe that is true at all.

In fact, COVID has only exacerbated the vast inequities that exist within our society. Inequities that are further inflamed by climate crisis that disproportionately affect our most vulnerable communities. So as we make the much-needed turn toward recovery, and we think about what it means to build back better, we can't ignore the role that climate justice must play in our plans for the future.

This committee understands better than anyone how complex these issues truly are. Almost every challenge we face in the Mayor's office, whether it is infrastructure challenges, unemployment, affordable housing, or transportation, can be connected to climate change, which is why the solution must be intersectional—must be as intersectional as the problem.

When I became mayor of Atlanta, I set forth my vision for One Atlanta, a more affordable, resilient, and equitable city for all. Central to that vision are collaborative, bold, innovative ideas that address climate change, create economic opportunity, and confront injustice head on.

That is why we are committed to 100 percent clean energy by 2035, and sustainable food access to as many residents as possible. We also established a community-led Clean Energy Advisory Board and joined the American Cities Climate Challenge. Work like this requires targeted investments in American cities to build out our Nation’s sustainable infrastructure, to create well-paying jobs, and to support a resilient clean energy future.

In many infrastructure and economic recovery—in any infrastructure and economic recovery package, we also urge you to prioritize and expand programs where funds flow directly to cities from the Federal Government, prioritize local government-led processes for Federal funds that flow to the states to improve inclusivity and accountability, ensure that Federal programs and funding prioritize disadvantaged communities and allow sufficient, administrative, and implementation flexibility to meet local needs, ensure that Federal spending is accompanied by workforce standards that prioritize job quality and equitable access to well-paying, high-road careers.

Cities face specific challenges unique to their geographical areas and, therefore, require flexible funding, direct grants, block grants, et cetera, that allow cities to address their distinct challenges efficiently and innovatively, while remaining accountable to grant requirements.

While I sit here today in my capacity as Mayor of Atlanta, first and foremost, I am a mother, a mother of four children with asthma. Just 2 weeks ago, I sat in the doctor’s office with my son who has mild, chronic asthma, as the doctor shared with me that the entire week his office had been flooded with children because the air quality was so poor just 2 weeks ago in Atlanta.

So, I know firsthand how climate change can affect real people in their everyday lives. We are dealing with it in my household.

This is not an esoteric problem that we face as elected officials; it is a real-world crisis that has already hit home for people around the world. Passage of the American Jobs Plan, including direct support to cities, will build a more equitable and resilient country, and your action will save lives. Thank you for the opportunity to join you today.

[The statement of Ms. Bottoms follows:]

Atlanta Mayor Keisha Lance Bottoms

**Testimony for the House Select Committee on the Climate Crisis,
“Building Climate Resilient Communities”**

Distinguished members of the Committee,

I am a native Atlantan—born and raised in this great City. Atlanta is at the center of a metropolitan area of six million people. It is often said that “all roads lead to Atlanta,” and if you visit, you will be faced with that harsh reality when you hit our now-infamous, bumper-to-bumper traffic. It is a visual reminder of just how concentrated our population has become. In fact, 83 percent of Americans now live in urban centers. As such, cities like Atlanta can serve as a microcosm of issues affecting the entire country—issues like climate change.

Over the past year, we have all faced unprecedented challenges. A global pandemic, punctuated by a racial justice reckoning, an economic downturn, spikes in crime, and a once-in-a-lifetime election. No one escaped 2020 unscathed, and for that reason, many have called COVID-19 “the great equalizer.” But that isn’t true at all.

In fact, COVID has only exacerbated the vast inequities that exist within our society. Inequities that are further inflamed by a climate crisis that disproportionately affects our most vulnerable communities. So as we make the much-needed turn toward recovery, and we think about what it means to “build back better,” we cannot ignore the role that climate justice *must* play in our plans for the future.

This committee understands better than anyone how complex these issues truly are. Almost every challenge we face in the Mayor’s office—whether it is infrastructure, unemployment, affordable housing or transportation—can be connected to climate change. Which is why the solution must be as intersectional as the problem.

When I became Mayor of Atlanta, I set forth my vision for One Atlanta—a more affordable, resilient and equitable city for all. Central to that vision are collaborative, bold, innovative ideas that address climate change, create economic opportunity, and confront injustice head on.

That is why we:

- Committed to 100 percent Clean Energy by 2035 and sustainable food access to as many residents as possible
- Established a community-led Clean Energy Advisory Board,
- And joined the American Cities Climate Challenge

Work like this requires targeted investments in American cities to build out our nation’s sustainable infrastructure, to create well-paying jobs, and to support a resilient, clean energy future. In any infrastructure and economic recovery package we urge you to:

- Prioritize and expand programs where funds flow directly to cities from the federal government.
- Prioritize local government-led processes for federal funds that flow to the states to improve inclusivity and accountability.
- Ensure that federal programs and funding prioritize disadvantaged communities and allow sufficient administrative and implementation flexibility to meet local needs.
- Ensure that federal spending is accompanied by workforce standards that prioritize job quality and equitable access to well-paying high road careers.

Cities face specific challenges unique to their socio-geographical areas, and therefore require flexible funding—direct grants, block grants, etc.—that allow cities to address their distinct challenges efficiently and innovatively, while remaining accountable to grant requirements.

I sit before you today in my official capacity as Mayor of Atlanta. But first and foremost, I am a mother—a mother of four children with asthma. I know firsthand how climate change can affect real people in their everyday lives.

This is not an esoteric problem that we face as elected officials. It is real-world crisis that has already hit home for people around the world. Passage of the American Jobs Plan, including direct support to cities, will build a more equitable and resilient country. Your action will save lives.

Thank you.

Ms. CASTOR. Well, thank you very much, Mayor. Next, Ms. Wallace, you are recognized for 5 minutes for presentation of your testimony. Welcome.

STATEMENT OF KIRSTEN WALLACE

Ms. WALLACE. Chair Castor, Ranking Member Graves, and distinguished members of the Select Committee, I appreciate today’s opportunity to underscore the value of investing in both the economic vitality and ecological integrity of the Mississippi River. The Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin formed UMRBA to foster and facilitate interstate water resources planning and cooperative action. UMRBA’s premise for its ongoing work to enhance ecological and economic resilience to climate change is that regional science, collaboration, and planning will lead us towards regional resilience.

We know that water, the amount flowing through the river, the duration that it remains high or low, the rate of change between high levels and low levels, greatly influences the river’s resilience.

Science is a fundamental priority. We have over 30 years of continuous monitoring through the Upper Mississippi River Restoration Program that allows us to quantify the ecosystem's resilience—in other words, its capacity to absorb disturbances and sustain its fundamental characteristics.

Continuous monitoring will allow us to make scientific observations about how the climate is affecting the river ecosystem, and how species might use the Mississippi River's longitudinal orientation to adjust their respective ranges to their advantage.

There is a tremendous amount of information at our disposal, and ongoing and planned efforts to increase our knowledge of climate crisis risks, including our forecasting capabilities. Our goal is to integrate the natural and social sciences to evaluate the effectiveness of potential actions, while considering the social, economic, and ecological dimensions of the problems and opportunities. This includes developing detailed assessments of the river's current and future needs for flood conveyance and storage, and unique causes of drought onset magnitude and duration in the watershed.

Major river systems, like the Mississippi River, require a sense of unity and shared commitment to solutions. Unity requires an appreciation of neighbors and conflicting interest and common knowledge of the resources, the problems, and opportunities. It also requires us having a shared vision for the future, and a plan to achieve that future.

While local planning is incredibly important to the unique characteristics and resources of each individual community, the interconnectedness among stakeholders across the watershed calls for regional planning. Achieving resilience will reside in our ability to work together. The discourse will be contentious at times. The issues are personal and involve people's families, homes, and livelihoods. But as indicative of the past, collective planning that considers individual, community, and regional implications will lead to solutions that are carried forward for decades and have lasting benefits.

Today, I would like to discuss our robust solutions for adapting to and mitigating the effects of climate change. The Upper Mississippi River Restoration Program restores the river's natural mosaic of braided channels and backwaters, increasing the quantity, quality, and diversity of habitat available for a wide range of fish and wildlife.

The Navigation and Ecosystem Sustainability Program is a comprehensive and integrative plan for meeting current and future shipping demands by modernizing the lock system and improving the health and resilience of the river ecosystem. We respectfully request continued support for these two programs, with a new construction start for the Navigation and Ecosystem Sustainability Program.

The health, function, and viability of the mainstem Mississippi River requests the performance of the watershed as a whole. It is widely acknowledged that actions must be taken in the watershed. While important strides in conservation practices and point and nonpoint source loading reductions have been achieved, attaining the goals we have collectively set through the Gulf Hypoxia Action Plan will require acceleration of its implementation.

We respectfully request an increase in Federal support for the ongoing implementation of the states' nutrient reduction strategies, including improving utilization of existing programs while dedicating resources specific to fulfilling that action plan.

And, finally, as the Governors' joint interstate collaborative, UMRBA is serving as the convenient entity for collective action to build the resilience of the Upper Mississippi River to major flood events, prolonged drought, and excessive sediment through a unified fleet of strategies and actions that would be implemented through a broad range of stakeholder authorities. UMRBA applauds this committee's focus on creating a national dialogue around climate change and on finding and investing in sound solutions.

We believe that the science, collaboration, and planning on the Upper Mississippi River can serve as a model for other regions of the country, and other floodplain systems across the world. We would appreciate an opportunity to continue working with you. Thank you.

[The statement of Ms. Wallace follows:]

**Testimony of the Upper Mississippi River Basin Association
Regarding the
Resilience of the Upper Mississippi River System
Submitted to the
House of Representatives
Select Committee on the Climate Crisis**

June 11, 2021

Chair Kathy Castor, Ranking Member Garret Graves, and members of the Select Committee, I appreciate today's opportunity to underscore the value of investing in both the economic vitality and ecological integrity of the Mississippi River. The Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin formed the Upper Mississippi River Basin Association (UMRBA) to foster interstate water resource planning and management, to facilitate dialogue and cooperative action, and to serve as an advocate of the states' collective interests. Through their steady, 40-year commitment to UMRBA, the states have worked diligently with federal partners and stakeholders to advance multi-use management of the river. Acknowledging the complex nature of the river system and array of human uses, UMRBA has always held that river management requires thoughtful and inclusive dialogue among the diverse suite of stakeholder representatives throughout the region.

The river is both a multi billion dollar economic engine and a treasured ecosystem abundant with fish and wildlife—generating revenues in excess of \$600 billion annually and supporting over 1.86 million jobs in manufacturing, agriculture, tourism, recreation, navigation, and energy sectors. The river also provides an irreplaceable water supply source for citizens and industries throughout the Midwest. The system of locks and dams provides for the movement of low-cost goods that are essential to a strong national economy: gravel, fertilizers and agricultural commodities, salt, and energy products. The river also supports a \$55 billion tourism and recreation industry built upon the serenity and adventure of the river's landscape and abundant opportunities for fishing and hunting.

Substantial changes in land use throughout the Upper Mississippi River watershed compounded with climate-driven shifts in precipitation are threatening public safety and critical infrastructure, impeding the safety and reliability of commercial navigation, limiting the economic resilience of communities, industries, and agriculture, and degrading fish and wildlife habitat in the river floodplain.

— In 2019 alone, the greatest volume of water flowed on the Upper Mississippi River through St. Louis in recorded history. Damages occurred from levees overtopping, uncontrolled underseepage (i.e., sand boils), interior flooding behind levees, and saturated soils reducing yields. Prolonged flooding condi-

tions shortened the 2019 shipping season and subsequent sediment disposition constricted the navigation channel, resulting in a reduction of approximately 30 percent in tonnage shipped on the river compared to 2018 and of 25 percent compared to the 10-year average.

- The fourth National Climate Assessment reports that annual precipitation in the Midwest has increased from a rate of five percent to 15 percent from the first half of the last century (1901 to 1960) compared to present day (1986 to 2015). It estimates that winter and spring precipitation, which is more important to flood risk on the Upper Mississippi River, will increase by up to 30 percent by the end of this century. This includes more frequent heavy precipitation events. This increase in precipitation will directly result in rising river discharge. At Lock 3, Minnesota DNR estimates that the discharge conditions of the 1960s will double by 2060 if the calculated rate of change from 1960 to 2020 continues until 2060.
- The National Climate Assessment acknowledges that human activity is not a major component of past drought occurrences in the Midwest, and that it remains uncertain how droughts will behave in the future. However, the Assessment suggests that Midwest surface soil moisture likely will transition from excessive levels in spring due to increased precipitation to insufficient levels in summer driven by higher temperatures.

UMRBA's premise for its ongoing work to enhance ecological and economic resilience to climate change is that regional science, regional collaboration, and regional planning will lead us towards regional resilience.

Regional Science Will Inform Regional Planning

In 1978, UMRBA's predecessor federal-state Commission established science and monitoring as a fundamental priority for the Upper Mississippi River—at basic level, to comprehend the status and trends of the river's ecological characteristics. With over 30 years of continuous monitoring through the Upper Mississippi River Restoration program, we are armed with the best information on any large river system in the world. We are now able to quantify the resilience of the Upper Mississippi River ecosystem—in other words, its capacity to absorb disturbances and sustain its fundamental ecological characteristics to support abundant and diverse fish and wildlife habitat.

The Upper Mississippi River Restoration program¹ has studied the accumulating data to develop a broad base of understanding that is invaluable to its restoration practitioners. But I will highlight some examples of we have learned from that work and some questions that will benefit from continued monitoring and research.

We know that:

- On a 44-mile stretch of the river between Minnesota and Wisconsin (Pool 4), climate change coupled with land use changes is causing a shift in annual spring flood pulse to a relatively steady state of high water with the high flood peaks in summer. Long term monitoring shows that this is disrupting important relationships in the food chain. For example, zooplankton flourished in the slow river current in June, coinciding with paddlefish migration to the area. Nearly all local larval fish species and adults of some fish species depend on zooplankton as a food source. High and fast water conditions in early summer wash away zooplankton—that important food source.
- Forest managers and scientists are also observing that high water conditions extending into summer are causing significant harm to the river's floodplain forests, with the forests' resilience is starting to fail. New hardwood trees are unable to establish and mature, leaving significant gaps in the forest canopy.
- Several consecutive years of more typical (lower) river flows can facilitate an ecological shift back to healthier conditions—allowing a regrowth in vegetation that then triggers a rebound in water quality and native fish. This illustrates the river's ability to be resilient to periods of sustained high water.

Continuing this long term monitoring will allow for making scientific observations about how the climate is affecting the river ecosystem and how species might use the Mississippi River's longitudinal orientation to adjust their respective ranges to

¹The Upper Mississippi River Restoration program, authorized by Congress in 1986, uniquely and effectively combines ecosystem restoration with scientific monitoring and research to improve fish and wildlife habitat on the Upper Mississippi River. The U.S. Army Corps of Engineers (USACE) has the ultimate responsibility for managing and executing UMRRA-EMP, while the U.S. Fish and Wildlife Service (USFWS), U.S. Geological Survey (USGS), UMRBA, and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin have their own specific responsibilities for implementing UMRRA. Other federal agencies, nongovernmental organizations, and industry groups are also actively involved in UMRRA implementation.

their advantage. What changes in the ecosystem can we expect if the current shift to more water more of the time continues? How can we sufficiently build resilience in the ecosystem while working with the river's dynamic nature?

We also know that water—the amount flowing through the river, the duration it remains high or low, the rate of change between high and low levels as well as sediment and nutrients also greatly influence the river's economic resilience and the ensuing social impacts. We want to use science to inform solutions to these challenges that also consider the social and economic dimensions of various problems and alternatives. There are ongoing efforts that will substantially enhance our prediction and planning capabilities, of which I will name a few:

- The U.S. Army Corps of Engineer's development of a two-dimensional HEC-RAS model² and updates to flow frequency profiles³
- The U.S. Geological Survey's Illinois River Basin Next Generation Water Observing System⁴
- NOAA's Atlas-14⁵ model improvements and other climate prediction tools as well as its National Integrated Drought Information System⁶

Regional Collaboration Will Advance Regional Planning

Major river systems like the Mississippi River require a sense of unity and a shared commitment to solutions among residents, communities, and businesses who live and operate within the river floodplains. Unity requires an appreciation of neighbors and conflicting interests and common knowledge of the resources and the problems and opportunities. It also requires having a shared vision for the future and a plan to achieve that future.

While local planning is important to the unique characteristics and resources of each individual river community, the interconnectedness among stakeholders from the southern tip of Illinois to the Twin Cities in Minnesota and everywhere in between calls for regional planning. Communities—people and business, river uses and users—on the Upper Mississippi River are inextricably linked. They share mutual experiences living and working alongside the dynamic river-floodplain. And, the actions of one affect the other.

Disaster events in the Midwest are typically regional events. Floods and droughts typically span a large geographic area with water resource management having implications far beyond a local community both upstream and downstream. Disaster-related mitigation, risk reduction, emergency response, and recovery can have profound, systemic implications regionally.

Achieving resilience will reside in our ability to work together and to find science-based solutions that consider the individual, community, and regional implications. We need to acknowledge that the discourse will be contentious at times and will always remain challenging. The issues are personal and involve people's families, homes, and livelihoods. UMRBA is committed to a transparent, objective, and inclusive process that involves developing informed consent to that process and to the ultimately shared solutions.

The complex array of human uses and interactions on the Upper Mississippi River will make obtaining informed consent inherently challenging. But, as indicative of the past, doing so will lead to solutions that are carried forward for decades and that result in sustained multi-purpose management.

Regional Plans and Coordinated Action Will Result in Regional Resilience

The region benefits from a deeply rooted partnership among federal, state, local, and nongovernmental interests as well as community leaders. Through our predecessors' foresight and commitment to integrated management, we are gifted with robust solutions for adapting to, and mitigating, the effects of climate change. Today, I would like to elaborate on two ongoing efforts in the Upper Mississippi River, discuss the benefits of nutrient reduction strategies in the watershed, and present the basin states' priorities for resilience planning.

²U.S. Army Corps of Engineers Upper Mississippi River System Hydraulic Model web page: <https://www.mvr.usace.army.mil/Missions/Flood-Risk-Management/UMRS-Hydraulic-Model-Update/>

³U.S. Army Corps of Engineers Upper Mississippi River System Flood Frequency Study web page: <https://www.mvr.usace.army.mil/Missions/Flood-Risk-Management/Upper-Mississippi-Flow-Frequency-Study/>

⁴U.S. Geological Survey Illinois River Next Generation Water Observing System web page: https://www.usgs.gov/mission-areas/water-resources/science/next-generation-water-observing-system-illinois-river-basin?qt-science_center_objects=0#qt-science_center_objects

⁵National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Data Server: <https://toolkit.climate.gov/dashboard-noaa-atlas-14-precipitation-frequency-data-server>

⁶National Oceanic and Atmospheric Administration (NOAA) National Integrated Drought Information System (NIDIS) web page: <https://www.drought.gov/>

The **Upper Mississippi River Restoration** program has restored over 100,000 acres of the river's natural mosaic of braided channels and backwaters, increasing the quantity, quality, and diversity of habitat available for a wide range of fish and wildlife. Learning from past experience, islands are constructed with the right topography to restore healthy hardwood forests by keeping the trees drier during more frequent and longer floods. It will continue to expand our understanding of the complex dynamics and interactions among various ecosystem characteristics and watershed drivers.

The **Navigation and Ecosystem Sustainability Program**⁷ is a comprehensive and integrated plan for meeting current and future shipping demands, stimulating economic growth, and improving the health and resilience of the river ecosystem. The new locks would enable the standard tow to pass without separating its barges, allow for two-way traffic, and prevent a shutdown of all riverine transportation during times of routine maintenance. These improvements will address the navigation system's longstanding infrastructure needs, ensure its resilience as well as improving the resilience of the nation's multi-modal surface transportation network. NESP will improve conditions for fish and wildlife through modified dam operations to restore natural river level variability, protect wetlands and lakes from fluctuating water levels and high sedimentation, restore forest health and diversity, recreate islands to provide refuge and food for many species of fish and wildlife, and restore natural diversity of water velocities and depths to improve fish habitat. Collectively, these restoration activities will help ensure that thousands of species of birds, fish and other wildlife continue to thrive within a changing climate.

We respectfully request continued support for the Upper Mississippi River Restoration program and construction funding for the Navigation and Ecosystem Sustainability Program.

The health, function, and viability of the mainstem Mississippi River reflects the performance of the watershed as a whole. It is widely acknowledged that actions must be taken in the watershed to reduce the challenges in the river. While important strides in conservation practices and point and nonpoint source loading reductions have been achieved, attaining the goals we have collectively set for reducing nutrient loading through the *Gulf Hypoxia Action Plan*⁸ will require acceleration of its implementation. We respectfully request an increase in federal support for the ongoing implementation of the states' nutrient reduction strategies, including improving the utilization of existing programs while also dedicating resources specific to fulfilling the Action Plan.

And, finally, UMRBA is bringing together those who live and work in the floodplain for the purposes of increasing resilience of the Upper Mississippi River to major flood events, prolonged drought, and excessive sediment by fostering dynamic, balanced, objective, and adaptive approaches management in a multi-purpose management context.

As the Governors' joint interstate collaborative, UMRBA is serving as the convening entity for collective action among federal partners, localities, academic institutions, and stakeholders. While we continue to advance actions to improve knowledge, address policy limitations, obtain resources, and secure working agreements, UMRBA's specific objectives for long term resilience planning are to:

- 1) Develop an integrated, comprehensive, and systems-based plan to minimize the threat to health and safety resulting from flooding by using structural and nonstructural floodplain management measures
- 2) Develop new, or renew existing, comprehensive long-term channel management plans that are sustainable, cost-effective, and ecologically sensitive
- 3) Develop mitigation strategies for multi-year drought events that would increase the resilience of communities and economies adjacent to, or dependent on, the Upper Mississippi and Illinois Rivers

Resilience planning on the Upper Mississippi River will be inherently shaped by, and will need to build upon, a tremendous and complex history of Upper Mississippi River management. We will benefit from the rich history of multi-jurisdictional cooperation, pulling from the unique strengths of our federal partners and other public and private stakeholders.

⁷The Navigation and Ecosystem Sustainability Program (NESP) was authorized by Congress in 2007 to construct new 1,200-foot locks at Lock and Dams 20, 21, 22, 24, and 25 on the Upper Mississippi River and at La Grange and Peoria on the Illinois Waterway; small-scale navigation efficiency projects such as switchboats at Locks 20–25, mooring cells at Locks 14, 22, and La Grange and a guidewall extension at Lock 22; and comparable ecological restoration funding to address the effects of the lock and dam system and related impacts.

⁸Hypoxia Task Force 2008 Gulf Hypoxia Action Plan: https://www.epa.gov/sites/default/files/2015-03/documents/2008_8_28_msbasin_ghap2008_update082608.pdf

UMRBA applauds this Committee's focus on creating a national dialogue around climate change and on finding and investing in sound solutions. We believe that the science, collaboration, and planning on the Upper Mississippi River can serve as a model for other regions of the country and other floodplain systems across the world. We would appreciate the opportunity to continue working with you.

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Ms. CASTOR. Thank you, Ms. Wallace. And thanks to all of our witnesses for your insightful and informative testimony. Next, we are going to go to member questions. I am going to start and yield my time to Representative Escobar of Texas. Representative Escobar, you are recognized for 5 minutes.

Ms. ESCOBAR. Thank you, Madam Chair. And many thanks to our panelists. I know that we are all in the struggle together. I represent El Paso, Texas. And I am coming to you from the safe and secure U.S.-Mexico border community that is in the middle of the Chihuahuan Desert, a community that is dealing also with issues around drought, extreme heat. I mean, we are seeing more and more days with temperatures well above 100. We just yesterday—this week, we are at 108. We are rapidly becoming as hot as communities like Phoenix and Tucson that have dealt with extreme heat for long periods of time.

And we are dealing also with the shrinking—shrinking amounts of water in the Rio Grande. So I know we are all in this really catastrophic struggle together.

Mayor. Mayor Garcetti—sorry. When I say “mayor,” there is three of you who own that. Mayor Garcetti, I have actually—I have been looking into a lot of the work that Los Angeles has done, specifically, around solar. And we have—you all heard about what happened in Texas with the grid. El Paso, actually, is on the Western grid. So we were exempt from the terrible consequences of what happened with the grid in the rest of Texas.

But—and we have a utility, El Paso Electric is about to build a—or is seeking to build a new power plant that is going to be utilizing natural gas. And many in the community have been pushing on the utility to go solar, to—instead of creating what could be at some point a stranded asset—and that is how Secretary John Kerry has deemed some of these as a stranded assets in the future—many are calling on them to just move towards solar far more quickly. And what we hear back is that the challenge is storage. And that the technology and capacity is still not there. I would love to hear about what you did, what is happening in Los Angeles, and how you charted that path.

Mr. GARCETTI. Well, thank you so much, Representative Escobar. My grandfather crossed that Chihuahuan Desert through El Paso as a baby in my abuela's arms to come into this country. So it is wonderful to have the Chihuahuan Desert evoked.

So, you know, we are the number one solar city in America. And you are right, it is a more complicated power source. And we have kind of taken a three-fold approach. One is massive solar arrays in the high desert, north of L.A. The biggest and cheapest in the country with storage is under construction right now, the Eland Solar

Project, and it is cheaper than a new gas plant. So on the cost, it is actually quite effective.

Second, we have a Feed-in Tariff that allows huge warehouses and other buildings to basically become power plants for us, and our utility pays them.

And third, distributed solar, which is at the neighborhood level, in which you have it on households, including low-income households, in looking increasingly at storage and building out the grid that it can accommodate much more generation there.

We had recent wildfires. Los Angeles City never had any outages because of that. But it came close because it cut off power lines that come in from other states. And we came within a percent or two of needing to have some blackouts in order to manage electricity.

So I would say this: One of the ways you can look at solar is, yes, with battery storage. That gets you only through a day or two. It is not long-term. We are also looking at excess wind and solar through some of the lines that come in from Utah, and looking for green hydrogen.

We have put out an RFI to store green hydrogen, but to create that using the excess solar. Under our biggest power plant in Utah, which we have the biggest ownership of. There are salt caverns the size of Empire State Buildings, about seven of them. And we are looking at firing up our turbines with a combination of natural gas and hydrogen, trying to get all the way to hydrogen.

So it is a way to store the solar production and the wind production in something that if you need, for instance, after an earthquake in our city, weeks of power, that would be much more dependable.

So it is a combination of different types of solar, different types of storage, and looking at excess solar, and putting that in a usable fuel as well.

Ms. ESCOBAR. Thank you so much, Mayor Garcetti.

And, Chairwoman Castor, thank you so much for yielding to me and your time. I appreciate it. I yield back.

Ms. CASTOR. Okay. Next, Representative Graves, do I understand you are yielding to Representative Palmer?

Mr. GRAVES. Yes, going to defer to Palmer to go first. Yes.

Ms. CASTOR. Okay. Representative Palmer, you are recognized for 5 minutes.

Mr. PALMER. I thank the gentleman for deferring to me. It would have been helpful if you had told me ahead of time, but we will discuss that internally next time.

I am very glad that we are having this discussion about dealing with mega drought. And I saw Chairman Castor smile at that reference to Garret Graves. I think it is time that we look at the efforts that we need to be making in terms of resilience, because as I have tried to point out on this committee many times, climate has a history. California, for instance, has a history of mega droughts. There have been at least four mega droughts over the last 1,200 years that have had enormously severe impacts. The one that California is in right now has a serious impact.

And what I would like to ask Mayor Garcetti is, looking at California—the State of California’s water policies, and their failure to

prepare adequately for the drought that you are in right now, should be of great concern to all of the mayors in California.

You had a major wet period in just—in 2019, record amounts of snowfall. I think the snowpack was 153 percent. Yet, because of the failure to prepare for the wet periods, you are really struggling in terms of your water capacity. How would you respond to that?

Mr. GARCETTI. Sure. A couple of things. One is it doesn't resonate as much in the City of Los Angeles, because we have been preparing for a long time. And it is not just a switch that you can just flip right away. We have built out, for instance, a ton of stormwater capture, so that when that snow melted and eventually made its way into Los Angeles River and other places, we now have huge catch basins that pass the largest water bond at the local level in U.S. history. As a council member that put a half a billion dollars into being able to really infiltrate that water into our natural aquifers.

As I mentioned, too, we are taking something that is three times bigger than L.A. aqueduct by taking our wastewater plant where 60 percent of our water flows through, gets cleaned up, and then washed out to the ocean, the only place that doesn't need more water, and we are converting that into something that will give us enough water for decades to come.

But I hear the point of what you are saying, and I do believe that both local, state, and Federal Government should be investing in that infrastructure, whether it is the WIFIA funds that are out there, or other things. The longer term—

Mr. PALMER. Let me—I want to ask some other questions of other members—

Mr. GARCETTI. Okay.

Mr. PALMER [continuing]. But I do appreciate that point you just made that we do need to be investing in this. And California should have been doing this. I don't think there has been any reservoir built in California since 1979. It not only would give you the water storage capacity, but also help mitigate against the flooding that you guys went through a couple of years ago.

Ms. WALLACE, the same thing with the Mississippi Basin. There were thriving Mississippian cultures throughout the Mississippi River Basin. Up until about, maybe, between 1200 and 1500, and they began to disappear because of prolonged drought. What we are experiencing in climate change is not new. So, in your work, how are you preparing for the climate change that is coming that we can't do anything about? Or are you taking that into account? Have you looked at the history of climate in the region?

Ms. WALLACE. Yes, and we are continuing to do that. Knowing what has happened and that history, but also—what is likely to come in the future is driving our conversations. There's a few things that we are trying to do to prepare ourselves for the future and act now. You know, it is as much of a science element.

So we are working on our science. We are working on—you know, U.S. Geographical Survey now has a Next Generation Water Observing System Program, which intensively monitors a basin. And they are doing 10 within the country. One is on the Illinois River Basin, extending from Chicago down to the Mississippi River—

Mr. PALMER. Ms. Wallace, I don't want to cut you off. I am very happy that you are doing that. I have only got a few seconds left.

And I do want to bring this up. It is something very important to me, because I grew up dirt poor in rural Northwest Alabama. And I concerned there is an article that was in the L.A. Times, Mayor Garcetti, that California's clean energy programs are mainly benefiting the rich. I have grave concerns, serious concerns about energy poverty. Energy poverty in Atlanta. Atlanta has the third highest rate of energy poverty in the country among U.S. major cities. The same thing is true in Los Angeles. And I am sure you are familiar with that article.

So, Mayor Garcetti, I hope that in your clean energy plans, you are taking that into account that low-income families need access to reliable energy.

Mr. GARCETTI. No question. And since we own our own utility, we are able to do that with probably the strongest low-income assistance, because we share that, you and I, together. We have different rates. We have huge subsidies. And thanks to Federal action, we have utility assistance from this pandemic that we have also taken some of our coronavirus relief funds back when we call the things coronavirus directly into low-income utility assistance.

And, finally, we put solar on the homes of low-income residents, because it should not be something that you just can afford to do. This has to be done for and by and with all Americans.

Mr. PALMER. Mayor Bottoms.

Ms. CASTOR. I think we are out of time—

Mr. PALMER. Okay.

Ms. CASTOR [continuing]. But maybe we will be able to back and Mayor can answer on another—during another member's time. Next, we will go to Rep. Bonamici. You are recognized for 5 minutes.

Ms. BONAMICI. Thank you so much, Chair Castor, and Ranking Member Graves. And thank you to our witnesses.

I represent Northwest Oregon, and here in the Pacific Northwest, we know that climate change is not a distant threat. It is a reality. In fact, last summer, nearly a million acres burned across my home state of Oregon as a result of historic winds, dry fuel conditions. Lives were lost, towns were destroyed, and air quality surpassed hazardous levels across the state and region.

In fact, I am extremely concerned about recent outlooks from the National Interagency Fire Center that suggested that the lack of rain and snow could result in yet another horrific wildfire season. And today's infrastructure and building standards don't take future climate trends into account. And current levels of infrastructure investment are not enough to respond to the threats of the climate crisis. We can truly learn from local leadership about addressing the climate crisis while making our communities more resilient.

So, Mayor Garcetti, in your testimony, you noted the importance of energy efficiency upgrades in creating good-paying jobs, reducing emissions, and improving air filtration for public health. So what are the current barriers for local governments in retrofitting public buildings to serve as shelters during wildfires or extreme heat events? And how can the Federal Government better incentivize

weatherization and other programs to meet the needs of communities often devastated by wildfires?

Mr. GARCETTI. It is a great, great question. I think, you know, giving us those funds to be able to look at not just at building on greener power, but also actually reducing and conserving, and building that sort of resilience is critical.

Again, I feel somewhat spoiled because we control our own utility. We don't have to negotiate with a private utility on this. But whether it is rebates for high efficiency, air conditioning, we install insulation for folks. We do have cold weather here, too, sometimes. And, obviously, for the warm weather days.

These sorts of things, which can be co-owned by the Federal Government or incentivized by the Federal Government, for utilities would go a huge way. It is usually pennies on the dollar for building out new things. And building efficiency is one of the areas we certainly have seen our energy use go dramatically down per capita in the City of Los Angeles. And I would encourage the Federal Government to look at what they can do and other communities to mirror that.

Ms. BONAMICI. Thank you so much. And Mayor Rhodes-Conway, in your testimony you mentioned the challenges of harmful algal blooms and hypoxia for beach and lake access points in Madison. And I know this is an issue that is of concern across the country. We face similar challenges across freshwater and marine ecosystems in Northwest Oregon. So how can natural infrastructure investments help address runoff and improve water quality to prevent future HABs and hypoxic events?

Ms. RHODES-CONWAY. Thank you, Representative. This is a serious issue for the city of Madison. We are surrounded by lakes, and it is no question that our changing climate is exacerbating this problem with both more runoff and higher temperatures that make the algae grow faster.

We are looking at—and I mentioned the stormwater study that we are doing. We are looking at how we can build in green infrastructure to slow that runoff, to infiltrate more water, and to clean the water that does end up in our lakes. We spend a tremendous amount of time and energy on this, whether it is managing the leaves that fall in the autumn and, keeping them out of the lakes, or in helping people to build their own raingardens in their front lawns, in terraces.

But, honestly, the scale of the investment is beyond us that is needed. And we really do need support from the Federal Government here.

Now, as I mentioned, in just our first four watershed studies, in looking at a combination of both green and gray infrastructure improvements, we are already at \$75 million, which is an absolute unprecedented level for our stormwater utility.

I would take the opportunity to mention, Representative, that while I appreciate the WIFIA funding, we don't actually need more opportunity to borrow. What we need is direct grants from the Federal Government in order to make these investments.

Ms. BONAMICI. Thank you so much, Mayor. I am going to use my remaining time to ask Mayor Lance Bottoms to please respond to

the question that was raised about costs and disparities in serving your people in Atlanta.

Ms. BOTTOMS. Thank you for the question. We have tried to put equity at the center of everything that we do. And even when you look at a map of our city, what you will see is that the energy burden primarily rests with communities that are lower-income communities of color. And, so, what has been very helpful to us in Atlanta, and even having this very complicated discussion about climate change is to speak to our communities in ways that it makes sense and it is impacting their day-to-day lives. So, if we speak of it in terms of how it impacts—as we have some of the highest asthma rates for children in our city. If I am speaking with seniors, like my mother, I am speaking in terms of how much they are paying each month for their utility bill, it becomes a much easier conversation, and gives us the opportunity to have broader buy-in than if we just speak of it in very complicated, hard-to-understand terms.

Ms. BONAMICI. Thank you, Mayor. And I see my time has expired. I yield back. Thank you, Madam Chair.

Ms. CASTOR. Thank you. Next, we will go to Representative Armstrong. You are recognized for 5 minutes.

Mr. ARMSTRONG. Thank you, Madam Chair. And through a really fortunate set of circumstances, two of my best friends in the whole world live in Atlanta. So I have had what I consider the pleasure of spending an exorbitant amount of time in that city, and it is fantastic. And I can even deal with the traffic. But I tend to wonder if some of the congestion is because everything seems to be located on Peachtree. And even my GPS gives up at certain points in time about where it is trying to go.

But I also appreciate that we are doing this hearing, and we are talking about community resiliency and talking about the Upper Mississippi River Basin. Because we are on the Missouri River Basin, and not all community resiliency exists in large cities. And those of you on the committee have known that I bring this up a lot. North Dakota understands, firsthand, as well as anyone problems posed by severe weather events, whether it is droughts or flooding.

And even now in our state, it is—well, we have got two-thirds of our state in what is—is a historical drought, and the other third of our state, we got 12 inches of rain the other day. And oftentimes, we just have to deal with these things.

But that brings me to a—I mean, the last thing—we need to finance these things, we need to fund these things. But part of the issue, and we have experienced this, is the Federal policy that dictates how to address these challenges while leaving little room for involvement at the state and the local level.

We are in the process of building one of the largest Army Corps of Engineers projects in the country. It is the Fargo Flood Diversion. It is a nearly \$3 billion project. This was made possible by having multiple levels of government involved and participating in the project.

It is not always easy, though. In 2011, through the—and I mean, we are dam-controlled river system. And we had a flood of our capital city in Bismarck on a dam-controlled river system. And if you ask anybody in the communities associated with this, they will say

the Army Corps of Engineers spent a little too much time in the spring worrying about the nesting of a piped clover and not necessarily about getting water down the system so we didn't flood our capital city.

So my question for Ms. Wallace is, as somebody who has—you have mentioned bringing together local stakeholders in supporting regional efforts. And can you speak to the involvement of the Federal Government, both good and bad in resilience planning? And what works well and what possibly needs reform?

Ms. WALLACE. Yeah, I mean, that is one of the biggest challenges is you need everybody to understand each other and in the same room. And one thing we were able to do this past—in 2019, in our partnership with the Army Corps of Engineers, we tried a unique way of holding meetings where we went to each community and had them set the agenda instead of us setting the agenda. And we had extraordinary feedback from, ag representatives, from people who reside in cities, and conservation interests. And they even said to each other, I am so glad I met you in person, and I can put a face to the issue and understand what you are saying better. And I think that is one major step forward that we can do to drive solutions. The science can tell us one thing, but it is really going to be up to the people to decide what solutions are best for their community.

Challenges. One challenge that I might mention working with the Army Corps of Engineers—well, we find these great solutions and we want to partner through these great solutions. The Corps does have challenges that states have an executing Project Partnership Agreements. Same thing with local communities and non-profits who want to advance private public partnerships. And that is because they require a nonfederal sponsor to fully indemnify the Corps and assume operations and maintenance as prescribed by the Corps in perpetuity. And under a changing climate, that doesn't make sense.

So if we could work with Congress to change that, that would be a really big deal for facilitating private investment along with the Federal Government.

Mr. ARMSTRONG. So we have a school being built in Bismarck as far north and away from the river as you can possibly be. And we are about, I think, 7 months behind on a Corps of Engineers watershed project. It is an acre and a half. We can't get our school built because we can't get a Federal permit in basically a stubble field.

So some of those frustrations exist. And it is not—it is not a cost issue. I mean, like I said, when you deal with their engineers and some of these really controversial projects, without the Corps of Engineers' involvement, we just—we couldn't get them done. So we do appreciate them on that end and sometimes on the other end.

How about NEPA review and environmental review? We all want to ensure proper environmental protections, but there continue to be problems with the proper roles of Federal, state, and local government. Do you have any opinion on that in 19 seconds?

Ms. WALLACE. In 19 seconds, I could say that we agree that environmental review is important. As with any process, continuously reviewing them and doing process improvements could always be a benefit to our projects.

Mr. ARMSTRONG. And I would just end with, funding these projects is important, but being able to get them in the ground and get them started in a reasonable amount of time will not only, I mean, help our communities, but will also help save money. And with that, I yield back.

Ms. CASTOR. Thank you, Rep. Armstrong. Next, we will go to Rep. Huffman. You are recognized for 5 minutes.

Mr. HUFFMAN. Thank you very much, Madam Chair, for once again putting together a really interesting and important hearing.

And Mayor Satya Rhodes-Conway, I want to thank you for making an important point. We are talking about resiliency and adaptation mainly today. And in all of the different impacts that we tackle, whether it is trying to keep our coral reefs alive, or our kelp forests in California, or to manage the wildland urban interface against the scourge of wildfires, or protecting coastal communities against rising sea levels, you know, we have to innovate, we have to adapt, we have to do all of that. But if we don't tackle decarbonization at the same time, the conditions are going to become so much worse, and eventually we won't be able to adapt and find resiliency. So, I think you made that point quite well, and I thank you for doing that.

Mayor Garcetti, thanks for bringing up the water side of the resiliency and adaptation leadership that you have shown. California water is complicated. And, you know, we do hear a lot of misconceptions. You know, no dams have been built since 1979. And we could take folks out to see Diamond Valley Reservoir, or Los Vaqueros, or Warm Springs Dam. And they have been built. And other things have been done. In fact, massive storage has been brought online using our groundwater aquifers and innovating in some of the ways that you discussed.

But when you spend an entire century building dams in every single place where it makes any sense, you do hit a point of diminishing returns and redirected impacts. And we are at that point now in California. So, if we continue to try to apply that 20th century solution to every challenge, it is not going to get us there—we are going to spend a ton of money and not solve the problem.

The things you mention, though, are creating resilience and bringing real wet water to communities to make them more resilient. There is a friendly rivalry, of course, between the Bay Area and Los Angeles. But I have to say, in this respect, you check all the boxes of innovative sustainable water management in a better way, I think, than many in my Northern California communities. We are playing catchup to your leadership. So thank you for that.

And I want to just ask you and the other mayors in the time that I have left about an aspect of this climate crisis that really deserves more attention. And it is the urban heat island effect. Because you are also innovating in that respect, and it has social justice and all sorts of other implications. But talk a little bit about what you are doing in Los Angeles to mitigate that problem? And I will ask the other mayors the same question.

Mr. GARCETTI. And I will try to be really quick.

Thank you so much for those words and for the great question and for your leadership.

For our most vulnerable populations, Representative, we are combining short-term climate adaptation measures, like cool pavement, shade structures.

Cool pavement, where we have lighter asphalts that we are pioneering in Los Angeles. It is about 10 degrees less on the ground and about 2 degrees less in the ambient area, which JPL and NASA is helping us work on—also, putting trees, not just dividing them by council districts evenly but putting them where the heat is the most, where often the poorest communities and the least shade exists, moving towards shade is an equity issue, as I described earlier—are two of the main ways that we are looking at, as well as, obviously, cool rooftops and light rooftops as well being mandated in our building codes.

Mr. HUFFMAN. And for the other mayors, if time allows, I would love to hear from you.

Ms. BOTTOMS. In Atlanta, in partnership with Spelman College and Georgia Tech, we are studying this, and also working on a study that really will confirm what we already know: that our marginalized communities are the ones who are bearing the burden of this.

And, again, I will give myself as an example. I live on the southern part of our city, a primarily African-American community. My monthly utility bill rivals a small commercial establishment, and that is not unusual. And so not only is it creating an issue that we literally can feel but it is also creating an issue that is a burden in our pocketbooks on a monthly basis.

Ms. RHODES-CONWAY. Thank you, Representative.

I think in Madison, just really briefly, we are also leaning into the urban forest. But we need building solutions. And, frankly, the reason that we are not able to do more in Madison is because in Wisconsin the building code is controlled at the state level, and we are preempted from exceeding that.

I would love to be exploring more solutions around white roofs, different building technology, efficient and sustainable heating and cooling options, like heat pumps, but I am very constrained in what I can do by state preemption.

Mr. HUFFMAN. Wow. Thank you for that.

Thank you. I yield back, Madam Chair.

Ms. CASTOR. Okay. Thank you, Rep. Huffman.

Next, we will go to Congressman Crenshaw of Texas.

Welcome. You are recognized for 5 minutes.

Mr. CRENSHAW. Thank you, Madam Chairman. Important hearing talking about resiliency to weather.

I am going to focus on flooding because, look, we are used to the heat and we are used to floods in Houston. But we have got to get our facts straight and understand the problem so that we can arrive at the right solutions, because oftentimes it rains here, it rains a lot here, and then we hear that, well, that is climate change, that is what climate change looks like.

But the thing is—and I am not denying climate change, of course—but what we do have to get straight is the rhetoric surrounding it. We are in a humid subtropical climate. We are on the Gulf of Mexico. Ten winding waterways. We are historically prone to flooding.

This last month everybody was talking about, it was May, that we had 11 inches of rain overall and it was considered exceptional. That is actually the median, and I can go back to 1888, and that far back you can find 11 inches of rain for the month.

So it does happen, it is not going to change any time soon.

We hear that we have had more 500-year floods in the last decade than ever before, but this is actually a clever distraction from the real point, because the 500-year flood is an insurance term, and that floodplain boundary changes based on urban development.

So if we are trying to prove that it is associated with climate change, we would have to talk about rainfall, and we haven't seen that data yet. I am not saying we won't. Indications say that we might. And we should reduce carbon emissions as a "just in case" scenario. Again, we are in agreement on that.

But to talk about flooding and resiliency, we do have to focus in on what really causes it, and it is a lack of infrastructure planning and it is poor development planning that really doesn't take into account the long history of normal rainfall that we have in Houston.

So, again, it is important to have the discussions on this committee about reducing carbon emissions long-term. There is an agreement in the outcome desired there. I think we have disagreement on what solutions we would prefer.

When we talk about resiliency, that conversation just has to happen whether climate change is a factor or not, because the reality is, the rain in Houston isn't going to change much no matter what we do, and we just need to be prepared for it as we have more people.

So, Ms. Wallace, I want to talk about the barriers that are in place with respect to that development. You don't work in Houston, but you understand the challenges.

How long has the Mississippi River Basin been flooding? And how long has the Federal Government known this is a problem? And have they really devoted the funds necessary to that problem?

Ms. WALLACE. We have been watching major flood events happen since at least—2008 was probably a major one that set this course for we need to develop a systemic plan for floods and how floods are conveyed and stored.

And in the middle of that, 2012, some other periods, we have seen some pretty consequential droughts. Knowing that the two are intermixed, we want to plan for both in an integrated way.

But to speak to your question about what are the flow frequency profiles, the Corps of Engineers is working on updating that. Just last year the Corps of Engineers also updated a two-dimensional model—actually, it was not updated, it was a new two-dimensional model to provide that tool for planning that you underscored of the importance along the entire Mississippi River.

So now we can understand what happens when you put a structure in there, you add conveyance, and look at the effects all around. And that hopefully will allow our planners in the local communities to build resilience around that and fit that within a system plan.

Is that fitting your question?

Mr. CRENSHAW. A little bit. I mean, what I am getting at is it does seem that we can add funding to this, but there are problems with the way we are modernizing the process by which we actually approve and plan for these projects.

How can we do better on that?

Ms. WALLACE. That is a great question.

Broadly speaking, we work at a full regional scale and then work with our state partners and our local partners. Having all hands on deck, having that shared vision, leads to an approval process.

On the lower Missouri River, for example, after the, I think, 2019 flood, there was a community there that the levee district itself worked to expand the river floodplain by doing a levee setback. And that came at a local level, but the state endorsed that, the Federal Government endorsed that. They knew that they needed to recover somehow.

That is a great example that should be highlighted across the country as a way that, all levels of government, all the way down to the residents who work there, come up with a solution that takes account this current flooding and what is projected long-term.

Mr. CRENSHAW. Well, I am out of time. Thank you.

I yield back, Madam Chair.

Ms. CASTOR. Thank you.

Next we will go to Rep. Neguse.

Welcome. You are recognized for 5 minutes.

Mr. NEGUSE. Thank you, Madam Chair, for holding this important hearing today.

And I want to say thank you to each of the witnesses for testifying and for their service to our country and to their respective communities.

Nationwide, as we have heard during the course of this hearing, our local communities are struggling to keep up with the challenges of climate change, from extreme weather impacts to natural hazards, such as flooding, as was just previously mentioned, and, of course, wildfires, which is particularly important for me and for my state.

I represent the great state of Colorado, as many of you know, and in 2020 we had a devastating and historic year for wildfires. Three of the five largest fires in state history occurred in the last year, and two of those were in my congressional district, the Cameron Peak Fire and the East Troublesome Fire.

Unfortunately, we can expect to see fires of this magnitude in the coming decades if we don't address climate change in a bold way. And I certainly want to thank the mayors for their work in this regard.

Additionally, communities are still building back in Colorado after we saw historic and devastating floods in 2013, which caused over 11,000 people to be evacuated, damaging 19,000 homes and, tragically, claiming several lives.

Local emergency management officials stress the need for increased flexibility from FEMA to allow for Building Back Better in the wake of these natural disasters.

We have a bill, the Climate Resilient Communities Act, which would help us do so, and we are certainly excited about moving that to the floor.

But in my view, the most meaningful pathway towards achieving what I have described is through the establishment of a 21st Century Civilian Climate Corps, which, as I know the witnesses are certainly aware, the President has announced his support of.

Ultimately, it would ensure that we make bold investments in climate solutions and the workforce needed to implement them, and in particular, for purposes of my state, the work that is necessary in our public lands, wildfire resiliency, mitigation, and so forth.

And so I wonder, Mayor Garcetti, as well as Mayor Bottoms, if either of you are familiar with the Climate Conservation Corps proposal and if you might be able to opine or expound a bit on how it might impact your respective communities.

Mr. GARCETTI. Absolutely. It is a great program, one that I am incredibly supportive of, and one which I am not waiting for the Feds, though looking forward to Federal enacting of this. We have launched an Angeleno Corps here, building on something that was Los Angeles Conservation Corps for a long time.

It actually does amazing work, because it takes some youth who have faced the toughest environments—coming out of the foster system, being in juvenile halls, et cetera—and turns them into environmental stewards. It helps them graduate from high school, they work sometimes past and even through college, as well as other folks who are returning, either from the criminal justice system or folks who are just interested in helping out.

And so coming out of the pandemic, we are going to be doing hundreds of these. Looks like the State of California will match that and double that, so we might have as many as a thousand Americans who are in there, going door to door and making sure the questions from Republican and Democratic members alike during this session are addressed, get that energy help to poor Americans in my city, get folks who can help weatherize homes, let people know about the rebate programs, et cetera, that is out there, and let them be empowered, not to be passive recipients but active participants in this struggle.

Ms. BOTTOMS. And thank you for the question.

I am not familiar with the program, but it does sound extremely interesting, and, again, going back to the equity focus that we have from our administration.

Youth engagement, workforce development training, is a huge part of that, especially as we go into the summer months and we are experiencing all the other challenges after COVID, related to an uptick in crime, kids being out of school, et cetera.

We have a very keen focus on youth development and workforce engagement. So it is something that I am certainly interested in learning more about and would definitely align with what our focus will be over the next several months.

Mr. NEGUSE. Thank you both.

And, Mayor Rhodes-Conway, if you would like to add, if you are familiar with the program.

Ms. RHODES-CONWAY. Yeah. Thank you, Representative.

I am familiar with the proposal, and I am a big fan. We would definitely use it in Madison.

We have a similar project that we support through the city, engaging disconnected youth in our conservation parks in particular, which we have increased under my administration.

But, similarly, we have our Green Power Training Program here in the City of Madison where we hire trainees and train them on solar installation, LED light conversion. And we are hoping to expand further into some of the green infrastructure work that we are doing, forestry, et cetera.

To date, our trainees are 73 percent people of color and 33 percent women. These folks can go on to careers in these industries, but what has happened is that we are hiring them into our Public Works Department, diversifying those departments, and setting them on the path to a good, family-supporting job in the long term.

I am very proud of this program. I think every city in the country could do something like this, in addition to state governments and private companies as well. And I really think that we need to be investing in our youth and our workforce in a way that is sustainable and grows these good green job careers.

Mr. NEGUSE. Thank you.

I see my time has expired.

But, again, thank you to each of the mayors. Very much appreciate your testimony.

And in particular to Mayor Bottoms, thank you as you near the end of your term. We want to say thank you for all the great work you have done down in Atlanta.

And with that, I yield back, Madam Chair.

Ms. BOTTOMS. Thank you.

Ms. CASTOR. Okay. Thank you very much.

Next we will go to Rep. Carter of Georgia.

Welcome. You are recognized for 5 minutes.

Mr. CARTER. Thank you, Madam Chair.

And thank all of you for being here, especially the mayors. I was a mayor in another life, and I know what a challenging position it can be, and I appreciate your interest in this.

Having said that, I will start with you, Ms. Wallace, since you are the only non-mayor on the panel.

Ms. Wallace, in your testimony you say: We will benefit from the rich history of multijurisdictional cooperation, pulling from the unique strengths of our Federal partners and other public and private stakeholders.

What are the unique strengths of the Federal Government that they can bring to governments like yours? Or partnerships like yours, I should say?

Ms. WALLACE. Thank you for that question.

So on the Upper Miss, we were previously—UMRBA was a Federal-State commission, and we were born from that. And so we have this underlying history, since the 1970s, of working in a very tight partnership between the Federal agencies and the States.

Our Federal agencies range from the Army Corps of Engineers, with its engineering of the river system, also its ecological restoration program; we have the Fish and Wildlife Service, which offers its unique role in terms of wildlife management, ecological processes; FEMA with its role on hazard planning and response; as well as U.S. EPA with oil spill response, planning, and mapping;

and then with USGS, their science-research arm; NOAA National Weather Service, with both its integrated drought planning and resources, and then also its forecasting prediction capabilities and understanding of the history of climate in the Upper Miss.

Mr. CARTER. Okay.

Ms. WALLACE. So all of that together is fantastic.

Mr. CARTER. Okay. Well, let me ask you this then. When is the Federal Government an obstacle or a burden to you?

Ms. WALLACE. Sometimes when each agency might have their own perspective for how things go forward. But as within any family, you might have disagreements here or there or challenges for moving forward, but we strive to overcome those.

Again, one that I have highlighted earlier is the U.S. Army Corps of Engineers Project Partnership Agreements. If those could be more shared in terms of the liability, we would have far more and faster, I think more efficient agreements between the Corps and the non-Federal sponsors.

Mr. CARTER. Okay. Well, you emphasized in your testimony how different communities are linked and the need for a shared vision for resiliency. And I want to thank you for that, because I agree, and I believe that Representative Palmer was the one who pointed out how important resiliency is.

Representing the entire coast of Georgia, I can tell you that we need to build up our resiliency, there is no question about that, and that is not a partisan issue. So it is very important.

Thank you, Ms. Wallace.

Mayor Bottoms, I wanted to ask you, you have committed Atlanta to 100 percent renewable clean energy by 2035. And I know that in Los Angeles, that they have committed to be 100 percent by 2045.

And then en route to that in L.A., in Los Angeles, they have had rolling blackouts as a result of depending on renewable energy that has turned out not to be as dependable, and we all understand the concerns of that.

Now, as a Georgian, I am very proud of what we have done. We are in the top ten in solar energy. We have got the only nuclear reactor [audio malfunction] you will find this hard to believe, but we are the number one forestry state in the country, and we serve as carbon sinks.

But how are you going to achieve this 100 percent renewable by 2035 and avoid these rolling blackouts?

Ms. BOTTOMS. Well, thank you for the question.

We have been very thoughtful in our planning with this. And, in fact, we had an earlier deadline to achieve this goal, and we extended the deadline because we wanted to make sure that we were thoughtful.

A huge part of that has been working with our utility partners, making sure that Georgia Power has been a part of this discussion, because we want to make sure that as we work to achieve that goal, that it is beneficial for all of our communities.

And so if that means that we have to further extend the deadline, which I certainly hope we will not have to do, but if we have to do that, to make sure that we get it right, we will certainly do

that and continue to have at the table front and center our utility partners to make sure that it is achievable.

Mr. CARTER. Okay. Thank you, Mayor Bottoms.

And, again, thank all of you on the panel for this important discussion.

And, Madam Chair, I will yield back.

Ms. CASTOR. Thank you very much.

Mr. HUFFMAN. Madam Chair, could I ask a point of clarification?

Ms. CASTOR. Yes.

Mr. HUFFMAN. Would it be possible to just give Mayor Garcetti a few seconds to clarify that there haven't been any rolling blackouts in California because of renewable energy?

Mr. GARCETTI. Correct. And it is the second congressional hearing where unfortunate mischaracterization. Los Angeles has never had a single rolling blackout.

You can speak about California more broadly, Mr. Huffman, but I just want to establish that for the record. We have not and we never did because of renewable energy.

It is the second time in a congressional hearing that has been put forward, and I very respectfully just want to correct the record.

Ms. CASTOR. Okay. Thank you for that clarification.

Next we are going to go to Rep. Brownley. I think she is going to come right back. So in the meantime, why don't we go to Rep. Miller.

Rep. Miller, you are recognized for 5 minutes.

Mrs. MILLER. Thank you, Chair Castor and Ranking Member Graves.

I just want to thank you all for being here today.

Like many of my colleagues sitting on the committee, my district in West Virginia has been gravely impacted by extreme weather events. And I feel for the Americans who have been impacted by natural disasters, and I look forward to using this hearing and future hearings to learn more about what actions that we can take to create real concrete results to mitigate the damage and save lives.

My district in southern West Virginia has a history of flooding. In 2016, three schools in one rural county were completely destroyed basically by flooding.

The schools are the center of the communities, and so it halted learning, it deprived the residents of the places that they went for everything. And it has taken years for this to be changed and the schools to come back up.

These catastrophic floods cost 23 lives at that time, and our communities are still in a recovery process.

It is history, but it is happening right now. Last night in West Hamlin, in Lincoln County, which is in my district, they were hit by severe flooding, and at least 50 families were trapped in their homes, and it damaged many others, and my prayers go out to these people who are affected in West Hamlin in Lincoln County.

But we need to figure out what to do. And that is why it is so important for us to understand what steps the Federal Government can take to help create real results.

Destroying our American energy infrastructure and instead relying on foreign sources of energy will create more global carbon

emissions. We need to do more to shore up our supply chain of critical minerals so we can produce energy of all kinds here in America and create jobs for our constituents.

And in the meantime, we have got to prepare our communities to mitigate damage from these extreme weather events and promote policies that prioritize resiliency.

Mayor Rhodes-Conway, in your testimony you mentioned the dangers that flooding presents to the city of Madison, Wisconsin.

What steps has Madison taken to promote resiliency from flooding? And how do you empower your citizens to engage in pre-disaster mitigation for their homes?

Ms. RHODES-CONWAY. Thank you, Representative. It is an excellent question, and flooding really is an issue.

I would like to point out that Madison, like many other places, really experiences several different types of flooding. We are between lakes, and so when the lake levels rise, over time—and I will say that our lake levels have been rising significantly over time due to increased precipitation—that will cause a backup of our sewer and storm water system. So there is that problem that we face.

There is also the problem of larger rain events. And while we may be getting the same amount of water over time, it is coming in more severe storms, so that more of it comes at once. And so then we have both the sort of regular local ponding in our streets and wet basement issues, and then we have the really severe crises like we saw in 2018 with the thousand-year flood.

As to what we are doing, again, because we are facing multiple types of flooding, it has to be a multifaceted approach.

We are, as I said, studying all of our watersheds to understand where flooding occurs and what improvements we can make in our storm water system, whether that be about gray infrastructure, pipes, et cetera, or green infrastructure, to address these issues.

But we also completely revamped our codes, our storm water code, so that future buildings must be built to accommodate the higher chance of flooding in our community, so that when buildings get built from now on they will be less likely to be impacted by flooding.

And one of the major things we did there was that we used to say you just have to pay attention to your own property, which, of course, means that you can just push the water problem off onto whoever is downhill from you. Now we are requiring folks to take into account the entire system and not push their problems.

Mrs. MILLER. I need to interrupt you. I want to ask you one more quick question.

Ms. RHODES-CONWAY. Of course.

Mrs. MILLER. Our rural communities often lack the resources available to the larger cities to engage in pre-disaster mitigation as well as promoting resiliency.

As your role of the Co-Chair of the Climate Mayors, how do you think we can help empower these neighborhoods, these communities?

Ms. RHODES-CONWAY. Thank you, Representative. Another excellent question.

I really believe that there is an opportunity for the Federal Government to partner with local governments so that we can identify and scale solutions that are working in one place that may work in another place.

And I do think that cities are the laboratories of democracy. We are learning things, we are innovating, and we are happy to share that knowledge and spread it.

I work closely with my partners, smaller cities in rural areas in Wisconsin, and I think that model is something that could work across the country.

Mrs. MILLER. Thank you. I yield back.

Ms. CASTOR. Thank you, Rep. Miller.

All right, next—let's see. I don't see a couple members that were going to try to come back.

So, Ranking Member Graves, are you prepared for your questions?

Mr. GRAVES. Yes.

Ms. CASTOR. You are recognized for 5 minutes.

Mr. GRAVES. All right. Thank you.

All the witnesses, Mayors and Ms. Wallace, thank you all very much for your testimony. It was a big help.

So I want to ask what I kind of touched on in the opening statement. Look, you could do all sorts of things in order to try and address resilience. What are some of the guiding principles that you are using to try to identify the investments that you are making?

Mayor Garcetti?

Mr. GARCETTI. I think, look, you have to have collaboration. You can't just come with an empty hat in hand to Washington. So demanding local and state participation, but, as Representative Miller said, conscious of the differences between communities and the resources folks have.

Second, empower everyday people.

Third, make it good for everybody's bottom line, so when you do incentives on energy or water conservation, you can—reduce consumption is the quickest way and cheapest way to save everybody money from the construction side to the bill side.

And I would say, fourth, too, look at where you can have a multi-benefit of anything you do. Create local jobs for at-risk youth while you are making your resilient city build-out and doing something about the climate emergency.

Those are the principles that we engage with every single day.

Mr. GRAVES. Mayor, thank you. That is helpful. And I will tell you, there are a number of things that I have been seeing done across the country that I have strong concerns with because I don't feel like that they are, as you said, you are talking about dual benefits and making sure that it results in a positive cost to benefit. But, unfortunately, I have seen a lot of things around the country that don't appear to be doing that.

Look, I am not going to proliferate rumors, but I have read some things that curry, yoga, and Taj Mahal may be in your future. And I don't want to cause any problems at all, so feel free, wave me off, or provide it in writing if you would like in the future. And I mean that.

If you look at what is happening, some of the models showing all of this transport, all of this—the additional emissions coming from countries in Asia, like China, how does that make you feel that you are there trying to be aggressive, leaning forward, meanwhile, you have got these extraordinary emissions? And in fact, China just even said this week that they might put the brakes on some of their reductions.

Again, feel free to respond in writing later on if you want.

Mr. GARCETTI. No, I am happy to—

Mr. GRAVES. No, I mean that. I do. I do.

Mr. GARCETTI. No, I appreciate it. And I am happy to actually answer it, because as Chair of C40 Cities, these are the 97 megacities in countries like China, India, across Africa, the Americas, Oceania.

And I will say this. Of those 97 cities, 54, I believe, of them have met or exceeded their promises in the Paris Climate Accord. They come from China. They come from countries that haven't met those goals, including our own.

There are only two countries in the world that have met their pledges, and that is, I think, the Gambia and Morocco. So it is not like we have a lot of countries that are meeting the mark.

But cities, I think, are inspiring those Nations to do better. It is the citizens of Beijing, when we have those monitors up in the U.S. Embassy, that said: Our air quality, we know now what it is and we are empowered to do something about it.

I think that is what America can do best around the world, is really empower that grassroots to say to their own national leaders through their civic, city leaders, let's do better. And that Mayor-to-Mayor conversation happens beautifully at a global level, too.

Mr. GRAVES. Thank you. I mean, I want to follow up with you maybe in writing after this.

But I want to turn very quickly to Ms. Wallace.

Can you talk a little bit—again, I love that Mayor Garcetti quote in regard to NEPA. It is a great quote and I use it all the time.

But, Ms. Wallace, can you talk a little bit—I have heard Congressman Kelly and others talk about frustration with implementation—can you talk about some of the challenges you all have had with trying to implement resiliency efforts that are obstructed by some of the red tape? I know NESP and others are priorities of you and your organization.

Ms. WALLACE. Yeah. NESP is a priority that we hope to see move forward, both for resilience of the navigation system but also for the ecosystem.

And, look, I think what was said earlier, we want to act now so we are prepared and we are resilient going forward into the future. If we delay action, that that is really problematic.

Our understanding of the delay in NESP is a decision within the Office of Management and Budget not to put it in the budget. And so we understand that the last administration had agreed, at the Department of Agriculture level, Corps level, and ultimately it was decided within OMB.

And so we are hopeful to get the funding for NESP to move forward. Again, that was an agreement reached by stakeholders, by

all the states and the Federal agencies and navigation and conservation interests.

This is our way forward. It was really insightful and innovative and would answer a lot of our challenges ecologically to the resilience.

Mr. GRAVES. Thank you.

Mayor Rhodes-Conway and Mayor Bottoms, I apologize. I do have some questions for you, but I am out of time. So we will see if we do a second round, or maybe I will submit them in writing.

Yield back.

Ms. CASTOR. Great. Thank you, Rep. Graves.

Next, I will recognize myself for 5 minutes for questions.

Thank you again to all of these terrific witnesses.

There are so many technological advancements that we can use to help lower electric bills for all of our neighbors.

And, Mayor Rhodes-Conway, you have kind of hit on one of the stumbling blocks, and that is the fact that you are preempted from kind of implementing certain new standards, kind of bringing in some of the modern technology.

This is a problem in other states, too, where local communities are bound by state laws that prohibit the adoption of modern codes and standards that are proven to reduce pollution and help bring online some of the smart technology.

So as we craft legislation in the Congress, how do we address that? We don't like to take too heavy a hand. We don't need that kind of national hammer. But we are going to have to help local communities get these things done. How do we do that.

Ms. RHODES-CONWAY. Thank you, Chair Castor. It is an excellent question.

And the principle that I would use to guide you here is the principle of floors, not ceilings. That the Federal Government, state governments, should set a minimum requirement and allow subsidiary units of government to exceed that.

So, for example, if the State of Wisconsin set a floor on our building and energy codes, but allowed jurisdictions like Madison or Green Bay or La Crosse to exceed that given our local conditions—for example, flooding—I think that it would allow us the flexibility that we need but not require everybody to hit that higher standard that Madison might want to hit.

So I do think that anything that could get states to that principle and philosophy would be extremely important and valuable to us. Failing that, I think incentivizing states to move towards adoption of the greatest codes.

Here in Wisconsin we ignored the last code update, we didn't adopt the national standard, and so we are falling behind every day.

Now, thankfully, Governor Evers is taking action to move forward on that. But nonetheless it leaves us really vulnerable at the local level of not being able to do the things that we need to do to protect our community.

Ms. CASTOR. Yeah. Thank you so much. It is just such common sense, and we have to use every tool in the toolbox.

And it has been good to hear during this hearing that there is bipartisan recognition that the burdens of the climate crisis often

fall upon our working class neighbors, and our Black and Brown neighbors.

FEMA is currently seeking help from cities and the public to change the way they address climate threats for underserved communities.

But my question to all of our whole panel, what can Congress do now, now we are marching forward to hammer out the American Jobs Plan, what do we need to include to help your cities center environmental justice across the board, from transportation to water infrastructure and housing? What needs to be said and done throughout legislation that we intend to pass?

Start with—let's go in the same order.

Mayor Garcetti, you can start.

Mr. GARCETTI. My time is limited, and it is such a huge question.

Ms. CASTOR. Yeah, it is.

Mr. GARCETTI. I would say that the most important thing to do is make sure that you are demanding some equity measures in there, because you can't fund equity enough.

But if you put equity, either the data has to be collected or that you have to show the output of hitting all communities, something that I heard across both Democratic and Republican questions today, I think that is a way to make sure that these jobs are local.

Do local hire for all this infrastructure, please, please, please allow that, and embed that, not just a waiver from the Feds, on DOT, on water projects, et cetera.

And let's create a whole workforce, so this isn't just about doing something for this legislation, but really creating career pathways that will be the climate warriors of this next generation.

Ms. CASTOR. Mayor Bottoms, why don't we go to you.

And then the others, you can submit answers for the record.

Ms. BOTTOMS. Very quickly. Small grant funding to our partners and also flexibility in funding.

I will just go back a few years to Hurricane Katrina. You think of Atlanta, we are an inland city, not expecting any major impact from hurricanes, but we had to take in a huge amount of the population of New Orleans, climate refugees, into our city.

So these unexpected expenditures that we experience too often now. So any flexibility that we have and expediency in giving funding directly to our cities would be helpful.

Ms. CASTOR. I certainly hear that from my mayor here in Tampa as well, don't park it through the state, get it to the local communities that know how to get things done.

You all have been a terrific panel, and I appreciate the involvement of all of our committee members today. Thank you.

So without objection, I am going to enter some documents into the record. Before I do that, I know Congressman Crenshaw brought up some issues on the sources of flooding, the causes.

I will tell you, our National Oceanic and Atmospheric Administration, they have the most up-to-date scientific analysis on changing temperatures, changing precipitation patterns. I recommend them to you.

And, in fact, if you go back to the National Climate Assessment, it shows that we are really talking about extremes here. The western and northern parts of the country are warming faster while

places that typically get a lot of rainfall are getting more of it in many of those extreme events.

So if folks who may be watching this hearing have questions, go dig into some of those maps, find out what is happening in your location, because the climate crisis is impacting communities across America in different ways.

But we know we are paying more and we are all suffering through many of these extreme events, and we are going to have to become more resilient to them.

So without objection, I would like to enter into the record a June 3 letter from WateReuse Florida, representing water utilities and communities throughout the state of Florida, encouraging Congress to invest in water recycling programs as a part of an infrastructure package to help communities build resilience and mitigate the impacts of climate change.

A June 10 letter from the American Society of Civil Engineers detailing the critical need for investment in our nation's infrastructure, the serious consequences if we fail to act, and the advancements in resilience across all infrastructure sectors that can be achieved by ensuring infrastructure meets modern codes and standards to protect public health and safety.

[The information follows:]

Submissions for the Record
Representative Kathy Castor
Select Committee on the Climate Crisis
June 11, 2021

June 3, 2021

The Honorable Kathy Castor
 Chair, House Select Committee on the Climate Crisis

Dear Congresswoman Castor,

We write to thank you for your leadership as Chair of the House Select Committee on the Climate Crisis, and to urge your support for water recycling as a climate resiliency tool.

WateReuse Florida is the state section of the WateReuse Association, which represents nearly 250 water utilities serving over 60 million customers, and over 200 businesses and organizations that advocate for programs and policies to support water recycling.

WateReuse Florida represents industry and communities throughout the State of Florida, working with private companies, municipalities and local professionals to promote and explore the beneficial reuse of water. Though much of our state receives an average of 50 or more inches of rain per year, more than 75% of our water supply comes from groundwater, and the availability of additional fresh groundwater is becoming limited in many areas of the state. Floridians currently utilize nearly 6.5 billion gallons of water per day and are projected to need an additional 1.1 billion gallons of water per day by 2035. Our continued growth, status as a world travel destination, and economic success depend on the identification of safe, sustainable alternative water supplies.

This past year our association has worked closely with State officials, academia, and the environmental community to help the state recognize highly treated reclaimed water as a source water for drinking. Many of our members are piloting different technologies to educate the public and demonstrate the safe and reliable use of recycled water. These programs are very costly and federal funding for these programs will provide your local constituents much needed sources of water to meet future needs without impacting the state's precious environmental water resources.

Water reuse, also known as water recycling, is the process of intentionally capturing wastewater, stormwater, saltwater or graywater and cleaning it as needed for a designated beneficial freshwater purpose, such as drinking, industrial processes, irrigation, groundwater replenishment, and watershed restoration. The fundamental principle of water reuse is using the right water for the right purpose, everywhere and all the time. By advancing water reuse, we protect and enhance the environment while helping communities build resilience to drought, flooding, land subsidence, saltwater intrusion into groundwater, and other impacts of climate change.

We commend the Committee for recognizing the role of water recycling in its June 2020 *Action Plan*, which makes the following recommendations:

- Congress should increase the authorization and the funding cap for water recycling programs in the Bureau of Reclamation;
- Congress should increase funds to EPA programs that support community water supply resilience, including the Drinking Water Infrastructure Resilience and Sustainability program, the design or construction of desalination facilities, and the implementation of projects to reclaim and reuse wastewater and stormwater runoff; and
- Congress should increase appropriations for the Clean Water and Drinking Water State Revolving Funds, and for the Water Infrastructure Finance and Innovation Act Program.

WateReuse Florida supports these recommendations and urges their inclusion in upcoming legislation. This year, Congress has an opportunity to pass major infrastructure legislation in response to the Biden Administration's infrastructure proposal. WateReuse Florida supports strong investments in water recycling programs as part of an infrastructure package to help communities build resilience and mitigate the impacts of climate change.

More specifically, WateReuse Florida urges Congress to invest **at least \$100 million in direct spending in the Pilot Program for Alternative Water Source Grants**. The Pilot Program for Alternative Water Source Grants enables the U.S. Environmental Protection Agency (EPA) to make competitive grants to state, interstate, and intrastate water resource development agencies to engineer, design, construct, and test alternative water source systems, including water reuse systems. The Pilot Program is reauthorized in both the Drinking Water and Wastewater Infrastructure Act of 2021 in the Senate, and the Water Quality Protection and Job Creation Act of 2021 in the House.

Investment in water reuse builds communities that are modern, sustainable and stable—ready for families to flourish and businesses to grow. We urge you to work with House leadership, committees of jurisdiction, and the Biden Administration to center water recycling as a climate resiliency tool in upcoming legislation. Thank you for considering our views.

Sincerely,

Robert Beltran, PE
Florida WateReuse President

CC:

Congressman Daniel Webster
Congresswoman Frederica Wilson
Congressman Brian Mast
Congressman Carlos Gimenez

June 10, 2021

The Honorable Kathy Castor
Chair
Select Committee on the Climate Crisis
U.S. House of Representatives
Washington, DC 20515

The Honorable Garret Graves
Ranking Member
Select Committee on the Climate Crisis
U.S. House of Representatives
Washington, DC 20515

Dear Chair Castor and Ranking Member Graves,

I am writing on behalf of the American Society of Civil Engineers (ASCE)¹ to express our thanks to the House Select Committee on the Climate Crisis for holding a hearing on *Building Climate Resilient Communities*. I would like to take this opportunity to share our views on this critically important topic.

Climate resilient communities depend on modern, reliable infrastructure to support them. Civil engineers are responsible for the planning, design, construction, operations, and maintenance of physical infrastructure, including communication facilities, energy generation and distribution facilities, industrial buildings, transportation networks, water supply and sanitation systems, and flood control structures. Most infrastructure is built to provide long service lives (50 to 100 years) and are expected to remain functional, durable, and safe. However, the increasing frequency and intensity of natural disasters, combined with increasing population densities, and system interdependencies have demonstrated vulnerabilities in the nation's infrastructure.

To ensure the nation's infrastructure systems continue to provide critical services and acceptably low risks of failures over time, engineers, designers, planners, and policymakers must incorporate system resilience into the decision-making process. Communities across the country and their foundational infrastructure is only as strong as its weakest link—if our roadways become too rough or flooded to travel, if our bridges close to heavier traffic like ambulances, if a region's energy grid is devastated by high winds, or if our levees protect one community at the expense of the one next door, quality of life deteriorates and the economy grinds to a halt. Therefore, the foundational step in improving climate resilience is first assessing the nation's existing infrastructure needs and conditions.

ASCE's 2021 Report Card for America's Infrastructure

Every four years, ASCE publishes the *Infrastructure Report Card*, which grades nation's major infrastructure categories using a simple A to F school report card format. The Report Card examines the current infrastructure needs and conditions by assigning grades and making recommendations to raise them. The 2021 *Report Card for America's Infrastructure*² was released on March 3rd and graded 17 categories with the cumulative grade of "C-." This grade represents the first time in 20 years that our infrastructure is out of the "D" range. The 2021 Report Card therefore demonstrates that we have made some incremental progress toward restoring our nation's infrastructure, however much work is left to be done.

The Report Card also clearly illustrates that we are still just paying about half of our infrastructure bill, as the total investment gap has gone from \$2.1 trillion over 10 years to nearly \$2.59 trillion over 10 years. As ASCE discovered in its 2021 study, *Failure to Act: Economic Impacts of Status Quo Investment Across Infrastructure Systems*,³ failing to close this infrastructure investment gap brings serious economic consequences. Poor roads and airports mean travel times increase. An aging

¹ASCE was founded in 1852 and is the country's oldest national civil engineering organization. It represents more than 150,000 civil engineers individually in private practice, government, industry, and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a non-profit educational and professional society organized under Part 1.501(c) (3) of the Internal Revenue Code. www.asce.org.

²<https://infrastructurereportcard.org/>

³<https://infrastructurereportcard.org/resources/failure-to-act-economic-reports/>

electric grid and inadequate water distribution make utilities unreliable. Problems like these translate into higher costs for businesses to manufacture and distribute goods and provide services. These higher costs, in turn, get passed along to workers and families. By 2039, America's overdue infrastructure bill will cost the average American household \$3,300 a year, or \$63 a week. When we fail to invest in our infrastructure, we pay the price.

Solutions

ASCE's Report Card does not just define the challenges we face, but makes recommendations to address our infrastructure problems, improve our quality of life, and strengthen our international competitiveness. The solutions include bold **leadership and action**, sustained **investment**, and a **focus on resilience** to raise the national infrastructure grade over the next four years, so that every American family, community, and business can thrive.

Strong leadership and decisive action require a clear understanding of what the United States needs to achieve an infrastructure system fit for the future. To close the nearly \$2.59 trillion 10-year investment gap identified in the 2021 Report Card, meet future needs, and restore our global competitive advantage, we must increase investment from all levels of government and the private sector from 2.5% to 3.5% of U.S. Gross Domestic Product (GDP) by 2025.

As we consider these long-term investments, it must be through the lens of ensuring that our nation's infrastructure is resilient -using new approaches, materials, and technologies to ensure infrastructure systems can withstand or quickly recover from natural or man-made hazards. Advancements in resilience across all infrastructure sectors can be made by:

- Enabling communities to develop and institute their own resilience pathway for all their infrastructure portfolios by streamlining asset management, implementing **life cycle cost analysis** into routine planning processes, and **integrating climate change projections** into long-term goal-setting and capital improvement plans.
- Incentivizing and enforcing the use of **codes and standards**, which can mitigate risks of major climate or manmade events.
- Understanding that our infrastructure is a system of systems and encourage a dynamic, "big picture" perspective that weighs tradeoffs across infrastructure sectors while keeping resilience as the chief goal.
- Prioritizing projects that improve the safety and security of systems and communities, to ensure continued reliability and enhanced resilience.
- Improving land use planning across all levels of decision-making to strike a balance between the built and natural environments, while meeting community needs, now and into the future.
- Enhancing the resilience of various infrastructure sectors by including or enhancing natural or "green" infrastructure.

Adaptation to Climate Change

Climate change poses a potentially serious impact on worldwide water resources, energy production and use, agriculture, forestry, coastal development and resources, flood control and public infrastructure. Examples include:

- Alterations to surface and groundwater patterns that will require changes to the transportation and waterpower-generation industries, and water supply systems, and flood control measures.
- Climate extremes such as floods, droughts, and other significant variations in hydrologic patterns may necessitate changes or additions to flood control measures and public stormwater infrastructure to adequately safeguard the public and local ecosystems.
- Changes in frequency and strength of tropical storms that will require changes in coastal protection systems.
- Changes in ocean levels that will require adaptation of infrastructure design in coastal areas, including ports, as well as residential and industrial areas.
- Changes in permafrost conditions that require retrofitting existing foundations and alterations to foundation and roadway designs.
- Changes in critical estuary inflows adversely affecting wetlands and wildlife habitat.

Such impacts could require modified design practices and measures to address the threat of rising sea levels, changes in water supply and quality, potential for outbreak of disease, and damage to critical infrastructure facilities. To address these challenges will take leadership and a commitment to act proactively instead of reactively. Specially, we must create:

- Government policies that anticipate and prepare for impacts of climate change on the built environment.
- Revisions to engineering design standards, codes, regulations, and associated laws that strengthen the sustainability and resiliency of infrastructure at high risk of being affected by climate change.
- Cooperative research among engineers and climate, weather, and life scientists to gain a better understanding of the magnitudes and consequences of future climate extremes and improve projection certainty.
- Research, development, and demonstration to advance recommended civil engineering practices and standards to effectively address climate change impacts.
- Informing practicing engineers, project stakeholders, policy makers, and decision makers about the uncertainty in predicting future climate and the reasons for the uncertainty.
- Identifying critical infrastructure that is most threatened by changing climate in a given region, informing decision makers and the public and enhancing infrastructure resiliency.

ASCE urges Congress to continue its recent path to address the impacts of climate change. Immediate action can be taken by passing both the PRECIP Act (H.R. 1437) and the FLOODS Act (H.R. 1438). These bills aim to address the out of date, but critical data that engineers, flood plain managers, dam safety officials, and local government require when designing structures, implementing evacuation orders, as well as making long-term decisions like planning zoning restrictions to minimize climate risks. ASCE supports both bills and urges Congress to pass them as part of any climate mitigation package.

Building Codes and Standards

The most reliable way to ensure our nation's infrastructure is climate resilient is the widespread adoption and enforcement of modern, up to date building codes. Model building codes are developed by experienced volunteer professionals working together under a multi-step, consensus-based process. Most professional engineering organizations maintain code development committees that initiate code provisions based on the practice in their technical areas and are often augmented by research. Topics for code provisions are often introduced in case study reports or research papers. In time, many of these provisions are gathered and published as design guidelines. Eventually the guidelines are transformed into standards and incorporated into the model code.

ASCE engages in the standards setting on a large scale. ASCE Standards provide technical guidelines for promoting safety, reliability, productivity, and efficiency in civil engineering. Many of our standards are referenced by model building codes and adopted by state and local jurisdiction. They also provide guidance for design projects around the world. Accredited by the American National Standards Institute (ANSI), ASCE has a rigorous and formal process overseen by the Codes and Standards Committee (CSC). Standards are created or updated by a balanced, volunteer standards committee, followed by a public review period.

ASCE supports the development, adoption, and enforcement of a national model code as a key method of minimizing climate impact and creating disaster resilience in communities to protect and improve public health, safety, and economic vitality. The following ASCE documents offer a sound basis upon which such a model code can be developed:

- ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-16),⁴ currently an integral part of U.S. building codes, describes the means for determining soil, flood, tsunami, snow, rain, atmospheric ice, earthquake, and wind loads, and their combinations for resilient structural design.
- ASCE 24, Flood Resistant Design and Construction,⁵ prescribes a standard for cost effectively increasing resiliency by reducing and eliminating risks to property from flood hazards and their effects.
- ASCE 41, Seismic Evaluation and Retrofit of Existing Buildings, standardizes methods for the retrofit of existing buildings to increase resiliency in communities after a seismic event.
- ASCE Manual of Practice 140, Climate-Resilient Infrastructure: Adaptive Design and Risk Management, provides guidance for and contributes to infrastructure analysis/design in a world in which risk profiles are changing due to climate change per the Fourth National Climate Assessment.

⁴ <https://www.asce.org/asce-7/>

⁵ <https://ascelibrary.org/doi/book/10.1061/asce24>

ASCE has furthered its standard development efforts by creating the ASCE-7 Hazard Tool.⁶ The tool provides quick, reliable way to look up hazard data for seven environmental hazards including wind, seismic, ice, rain, snow, flood, and tsunamis, to determine multiple types of hazard loads for buildings and other structures.

In the wake of Hurricane Harvey, the City of Houston voted to require all new construction in the city's floodplains be built two feet above the 500-year floodplain. Florida, meanwhile, has made a series of updates to their building codes over the past twenty years, including the mandated use of stronger nails, relocation of vents, and more thorough inspection processes. These are strong examples of how codes can be modernized and ASCE standards can be incorporated to strengthen a city or state's resilience.

Additionally, ASCE is developing a standard to provide further guidance for sustainable practice. This new standard, to be called ASCE/COS 73-XX Standard Requirements for Sustainable Infrastructure,⁷ is intended to guide sustainable infrastructure development through the entire life-cycle process. The standard will encourage transformative development of the infrastructure solutions at the earliest stages; consider and analyze all reasonable alternatives; and consider natural, no-construction and constructed project solutions. For constructed project solutions, the entire life cycle of the project shall be considered within the context of this standard. The standard is being developed through the American National Standards Institute (ANSI) which permits comments from all stakeholders.

While many state and local government are leading the way, ASCE encourages Congress to continue to support and incentivize the widespread adoption and enforcement of up-to-date building and infrastructure codes. Additionally, we urge Congress to provide robust funding to those federal agencies whose mission includes preparing and implementing a national model code addressing climate change, as well as promoting national incentive programs encouraging state and local agencies to adopt a national model code.

Building on Progress

ASCE applauds Congress for the enactment of the Disaster Recovery Reform Act of 2018 (DRRA) in 2018. DRRA authorized the National Public Infrastructure Pre-Disaster Mitigation fund, which is being funded as a 6 percent set-aside from disaster expenses and allows for a greater investment in mitigation before a disaster. The Federal Emergency Management Agency (FEMA) responded to the law by creating the Building Resilient Infrastructure and Communities (BRIC) Program. ASCE⁸ has praised FEMA for its efforts to implement the transformational provisions of DRRA and for engaging the stakeholder community, including ASCE, in the implementation of BRIC. We are encouraged to see that FEMA has been responsive to its stakeholders by incorporating feedback in the key provisions within the BRIC.

ASCE was pleased with the President's recent announcement that he had authorized the Federal Emergency Management Agency (FEMA) to double to \$1 billion for FY 2021 the funding available for the BRIC program.

ASCE also applauds Congress for the creation of the Resilience Revolving Loan Fund. ASCE has noted that the Resilience Revolving Loan Fund will help communities take proactive measures in the wake of the record-breaking flooding our country has experienced, and it would facilitate innovative solutions that allow cities to reduce federal disaster spending in the future. Prioritizing resilient infrastructure, including energy and water systems, is critical to a thriving economy and healthy communities, and ASCE is proud to support this legislation.

It is actions like these that have shown Congress's commitment to resilience and ASCE urges Congress to continue these efforts going forward. Our future depends on resilient infrastructure, and as civil engineers, we are thinking about building infrastructure that will last for one hundred years, or more. To ensure our infrastructure is more resilient and sustainable, we must plan with new technologies, approaches, materials, and policies that focus on long-term dividends rather than up-front costs.

Although challenging issues such as climate change, urbanization, and the rapid pace of technological advancement create opportunities, they also require serious re-evaluation of current professional practice and standards.

To achieve sustainable infrastructure, engineers must approach projects and engineering in a new way. The focus of our engineering efforts must shift from the product of our work—the stormwater management system, the bridge, the building—to

⁶ <https://asce7hazardtool.online/>

⁷ <https://www.asce.org/templates/press-release-detail.aspx?id=39661>

⁸ <https://www.infrastructurereportcard.org/wp-content/uploads/2020/05/ASCE-Statement-to-FEMA-on-BRIC-Guidance-5-11-20-FINAL.pdf>

the needs and benefits that the project aims to address. We must consider all possible alternatives before projects and programs are conceived, executed, and operated—in other words, to “do the right project.”

Conclusion

ASCE once again thanks the Select Committee on the Climate Crisis for holding this hearing and highlighting the importance of the resilience in the face of climate change and the accompanying changes in weather patterns.

Natural and man-made disasters have repeatedly demonstrated the vulnerability of the nation’s infrastructure. Congress and the Administration, as well as state and local governments, need to make addressing infrastructure vulnerability a major component of infrastructure initiatives and investments going forward. Such emphasis is critical to the nation’s infrastructure and to the health and safety of American communities.

If you need more information or ASCE can be of further assistance, please do not hesitate to contact me at efeenstra@asce.org.

Sincerely,

Emily A. Feenstra
Managing Director, Government Relations and Infrastructure Initiatives

Ms. CASTOR. Without objection, all members will have 10 business days within which to submit additional written questions for the witnesses. I ask our witnesses to please respond promptly.

Thank you again. The Select Committee on the Climate Crisis now is adjourned. Have a great weekend.

[Whereupon, at 2:11 p.m., the committee was adjourned.]

**United States House of Representatives
Select Committee on the Climate Crisis**

Hearing on June 11, 2021

“Building Climate Resilient Communities”

Questions for the Record

**The Honorable Eric Garcetti
Mayor of the City of Los Angeles**

THE HONORABLE KATHY CASTOR

1. Your city faces complex climate impacts including yet another alarming season for dry weather, heat, and wildfires. You testified about the many integrated approaches your city is undertaking to increase efficiency as well as resilience to climate impacts. How can the federal government support local efforts to prepare for wildfire season and make rapid changes that will reduce wildfire risks and address smoke hazards that can affect vast areas of your region?

LADWP utilizes various system hardening strategies to ensure resiliency and mitigate wildfire risks. In high fire-threat areas, LADWP replaces bare conductors with insulated conductors, installs fiberglass crossarms, and installs alternative material and coated poles such as ductile iron, steel, and concrete, where feasible. In addition, LADWP design standards have been updated to increase conductor spacing and increase pole load calculations to sustain higher wind pressure. Sustained vegetation management practices and inspection and maintenance activities are also crucial to mitigating wildfire risk. In addition to infrastructure hardening, L.A. views having a diverse portfolio of electricity resources as a strength when it comes to providing resilience against emergencies such as wildfire. A portfolio of inside-the-city resources such as distributed solar and storage and out-of-basin wind, solar, and batteries coming from different parts of the western United States all contribute to reliability and resilience.

Strong Federal support for local resiliency efforts can be very influential to communities, ranging from support for diverse clean energy resources, to technology funding, multi-agency exercises, local community preparation, and air-quality mitigation/adaptation partnerships.

New technology has provided local and regional fire agencies with cutting-edge, real-time tools such as the WIFIRE fire-storm modeling program, pioneered by the University of California, San Diego. This program leverages drones, satellites, and other emerging technologies to monitor for and identify early brush fires. New funding for these technologies and emerging technologies would allow local fire suppression and fighting efforts to utilize the most modern and effective tools to protect life and property.

Exercises and drills have proven to be essential in both preparation for and the coordination of major suppression, fire-fighting, and evacuation needs. These multi-agency preparedness and communications coordination—both in-person and virtual—have allowed technology to be tested, communication systems to be improved, and agencies to cross-pollinate and gain familiarity with each other for more seamless cooperation at a given command post or in the field. Federal assistance with these exercises could enhance such multi-agency coordination training.

Local agencies and departments also deploy preparedness programs through community seminars, neighborhood asset/risk mapping, and awareness campaigns. In addition, new and innovative efforts like community resilience hubs, defensible land use seminars, and alternate evacuation designations both inform and protect local communities. More funding and resources for these efforts could increase effectiveness and provide community-scale protection.

In addition, due to the year-round regional air quality challenges that Southern California experiences, a lot of effort has been dedicated to monitoring, mitigating, educating, and adapting to potentially unhealthy air. Partnerships with local universities, health organizations, technology/AQ monitor companies, and local, state and Federal (ie NASA, NOAA, EPA) agencies have enabled the region to begin to better predict, protect and minimize the impacts of our air quality challenges—especially when exacerbated by wildfire. Continued and expanded Federal partnerships in these efforts would not only help the entire region, but would also help focus those efforts on the areas of the region that are disproportionately impacted by heat, air quality, and wildfire challenges.

2. Your testimony noted your City’s development of equity metrics to track, measure, and report how its programs are benefiting customers, particularly those most vulnerable. What are the sorts of metrics that you’ve found to be useful in identifying disparities and prioritizing actions to close gaps? How have you engaged stakeholders along the way and made the metrics and performance tracking accessible to everyone?

In March 2016, LADWP established its Equity Metrics Data Initiative¹ (EMDI) to track, measure, and report on how its programs are provided to all customers and residents of Los Angeles. LADWP began collecting data for its EMDI program in August 2016, and reported on 15 different metrics across four broad categories (Water and Power Investment, Customer Incentive Programs/Services, Procurement, and Employment) on a semi-annual basis to LADWP’s Board of Water and Power Commissioners. These EMDI reports can be publicly accessed on LADWP’s website.

The EMDI’s data-driven framework assesses how well LADWP’s programs, services, and resources are distributed and used throughout the city, both geographically and demographically.

In October 2020, the LADWP Board approved an additional resolution to work with internal and external stakeholders to review and expand the current metrics. Furthermore, the resolution required that LADWP utilize data analytics and policy review to ensure that the EMDI goals are clear and that program implementation results in improved outcomes for EMDI stakeholders, particularly vulnerable, low-income communities of color.

In January 2021, LADWP held two stakeholder workshops between LADWP, the LA Mayor’s Office, and nonprofit and community organizations. These workshops helped LADWP determine how to better improve the EMDI program through constructive recommendations on new metrics (particularly for residential rebates, customer billing, electric vehicles, human resources which are part of Mayor Garcetti’s Back-to-Basics agenda and his Green New Deal Sustainability pLAN), data reporting mechanisms, and tracking linkages between EMDI data findings and programmatic and operational outcomes of LADWP.

¹ https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-financesandreports/au-fr-corporateperformance/au-fr-corporateperformance-emi?_afLoop=1226367680822484&_afWindowMode=0&_afWindowId=15k43mzd93_1#%40%3F_afWindowId%3D15k43mzd93_1%26_afLoop%3D1226367680822484%26_afWindowMode%3D0%26_adf.ctrl-state%3D15k43mzd93_17

Going forward, LADWP will continue to engage with more external stakeholders to ensure these workshop outcomes are met and that LADWP continues to address equity across its departmental role to mitigate climate change, ensure power grid and water resource reliability, customer service needs, and employee safety and fairness in Los Angeles.

Questions for the Record

**The Honorable Satya Rhodes-Conway
Mayor of the City of Madison, and
Co-Chair, Climate Mayors**

THE HONORABLE KATHY CASTOR

1. In your testimony, you note that your state does not allow local governments to set energy codes. This is a problem in other states too, where cities and counties are bound by state laws that prohibit adoption of modern codes and standards that are proven to reduce emissions and protect lives and property in disasters. As we work to craft legislation to invest in infrastructure and economic recovery, how can Congress help states and local governments keep pace with advancements in codes and standards to reduce emissions and increase resilience?

Wisconsin is one of numerous states that is lagging behind in the energy efficiency of new commercial buildings because of restrictions in state energy codes. As you reference, Chair Castor, the City of Madison is not authorized to establish and enforce a local energy code. We can only enforce the state code. Unfortunately, our state code is lacking many critical elements that other states around the nation benefit from. Wisconsin last adopted the 2015 version of the International Energy Conservation Code (IECC), but only after removing critical efficiency elements. That means the efficiency of our code is actually far behind even the 2015 version.

Specific to federal legislation to invest in infrastructure and economic recovery, support for more efficient and resilient buildings may be most impactful by requiring that funded projects be built to a stated efficiency standard, such as the 2021 IECC. This national model code incorporates strong but achievable efficiency standards. Requiring such a standard for any federal dollars spent would ensure federal investments in new buildings help advance energy efficiency and resilience goals. It would also provide localities with better buildings, and would give our local development sector more experience designing and constructing highly efficient and resilient buildings. That experience and familiarity may help facilitate the adoption of higher standards into state codes.

An approach I would not recommend pursuing would be that of prioritizing funds to localities with stronger standards. While this approach might be intended to incentivize states to adopt stronger codes, the result will more likely be that localities that are already most behind in the efficiency of their buildings will remain most behind by missing out on some funding opportunities.

2. You testified about your efforts to advance sustainability and resilience for existing buildings and infrastructure. What examples can you share of ways that federal programs have hindered your local efforts to efficiently address needs to retrofit existing buildings and other assets so that they will be energy and water efficient and resilient to climate impacts? Are there specific programs that you believe would better support those local needs if they were made more flexible?

Madison's current and historic program offerings have been tailored to the federal funds supporting the same objectives. As we look to the future, we have a desire to do more, and to do some things differently, and we are hopeful that the criteria associated with federal funding support will be flexible enough to support our shared goals.

Flexible funding sources that support holistic building retrofits: The City of Madison is working to establish a new building retrofit program for naturally-occurring (unsubsidized) affordable rental housing that addresses multiple needs around health, energy, and resilience. To be efficient with our time and resources, we need to address all a building's needs in one project. This includes energy efficiency, renewable energy, water conservation, critical building repairs, mold remediation, and lead remediation. We support increased funding to existing federal programs, and we also support funding new and more flexible programs.

Existing programs like the Energy Efficiency and Conservation Block Grant (EECBG), the Weatherization Assistance Program (WAP), the HOME program are extremely valuable, but these dollars are often oriented to a specific subset of a building retrofit. A holistic program would be best implemented if it could be designed, administered, and reported on through a singular federal funding source with broader climate- and community-oriented goals. Reorienting the EECBG program around climate, equity, and resilience may be one way to achieve this objective.

Expanding eligibilities of existing programs: As mentioned, the purpose and requirements of existing programs such as EECBG, WAP, and HOME could be revised and expanded upon to make federal dollars go further in our communities. Congress should consider expanding eligible activities, including allowing funds to be used for both planning and implementation work. Lawmakers should also encourage the Environmental Protection Agency (EPA) to consider additional project benefits such as reducing energy burdens, increasing resilience, deploying innovative technologies, and improving the public health and safety of residents. Furthermore, Congress should enable communities to target low-income and moderate-income families. Ultimately, Congress should seek to streamline eligibility requirements across income-qualified energy programs. Finally, lawmakers should direct more aid to cities to implement improvements in the transportation sector by enabling cities to be a direct recipient of existing programs at the U.S. Department of Transportation or requiring that state sub-allocate a portion of their program dollars to the local level.

More grants for major infrastructure investments: Madison needs to make major investments in stormwater management and flood protection due in part on the wetter climate we are experiencing. The City has completed only a handful of 23 planned watershed studies to identify our critical needs, and we have already identified \$75 million in critical stormwater projects. When the studies are complete, we could have a list of critical needs totaling hundreds of millions of dollars. Madison can currently fund stormwater investments primarily through local bonds or state loans. The debt service on loans and the impact on local utility rates are barriers to action on big-ticket items. The most helpful action the federal government could take would be to reinstitute historic grant funding for major stormwater infrastructure investments.

Aligning all funding around common goals: Everything we do must align with and advance our climate and equity goals. Numerous other funding sources have the potential to better integrate these goals. All projects should be built to future climate conditions. All grant agreements could incorporate workforce development standards to ensure that resulting jobs have family-sustaining wages, employer-provided benefits, and safe work conditions. Career pathways and apprenticeships should increase access to underrepresented populations, including low-income individuals, women, people of color, and historically marginalized communities.

Questions for the Record

**The Honorable Keisha Lance Bottoms
Mayor of the City of Atlanta**

THE HONORABLE KATHY CASTOR

1. You testified about your vision through One Atlanta, your vision for an affordable, equitable, sustainable, and resilient city, that achieves its commitment to 100% clean energy by 2035. States are enacting restrictions on the authorities of local governments to adopt and enforce energy conservation and resilience codes and standards in a trend that has Congress concerned about the prospects for the kind of local leadership and innovation that your city demonstrates. What has been your experience in Atlanta? As we work to craft legislation to invest in infrastructure and economic recovery, how can Congress help states and local governments keep pace with advancements in codes and standards to reduce emissions and increase resilience?

In general, cities are responsible for regulating what happens in buildings, since all buildings are inherently local. Buildings are responsible for significant climate emissions. However, we have seen erosion of a city's ability to take ambitious action to address the climate and equity impacts of our buildings. First, the International Code Council (ICC) Board of Directors voted to eliminate governmental member voting from the final determination of the International Energy Conservation Code (IECC). This was because cities voted in favor of ambitious climate-oriented energy

code provisions. Second, there are 19 state legislatures in 2021 with bills introduced or passed that would preempt cities from contemplating the type of energy and fuels used in buildings in our community. Georgia is one such state where this kind of bill passed this year. While the City of Atlanta was not contemplating code changes that would address fuel use, we are concerned about the chilling effect such an expansive law has on creativity and innovation that cities are known for. Cities need flexibility and a whole toolbox of solutions to address climate change. Anything the federal government can do to continue to incubate and protect cities' ability to think of creative and equitable climate policies through the use of codes is needed.

Further, codes only work if we can ensure they are followed and we build the capacity locally to keep up with new codes. Funding and support for training of city staff building inspectors and others is critical to ensure the benefits of codes and standards are achieved.

2. Your city was the first to bring environmental impacts bonds to public market. What are the challenges you encountered along the way? How can the federal government help communities take advantage of these sorts of innovative finance approaches, especially those that are suffering chronic disinvestment who most need access to capital?

The City of Atlanta is very proud of our Environmental Impact Bond, which will be financing critical improvements on Atlanta's Westside that will bring multiple environmental, social, and economic benefits to some historically underserved communities.

As with anything that is new and innovative, structuring and issuing the first publicly offered Environmental Impact Bond required a great deal of groundwork and creativity, from creating the performance-based models that tied the green infrastructure projects to financial outcomes, to drafting the legal documentation. Atlanta had the advantage of Rockefeller Foundation support in the form of outside services (Quantified Ventures) to help us understand and structure this new type of financing, which was critical to our success. The necessary upfront investment and lack of capacity could be an obstacle for many municipalities in taking on something new, and the federal government could provide this much-needed upfront support to open new funding vehicles. One of our goals was to demonstrate the viability of this new financing mechanism in a municipal bond market that can be slow to adopt change and to provide a model for other cities to build upon. A small initial investment of resources can have a tremendous impact and will begin to make impact-investing a common practice. In the end, these bonds were fully subscribed and opened a new source of private financing from outcomes-based investors, allowing Atlanta's Department of Watershed Management to prioritize impactful projects that will reduce flooding, improve waterways, create greenspaces for health and recreation, and provide green jobs and training.

