CLIMATE CHANGE, PART IV: MOVING TOWARDS A SUSTAINABLE FUTURE

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CLIMATE CHANGE, PART IV: MOVING TOWARDS A SUSTAINABLE FUTURE

Thursday, September 24, 2020

HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON CIVIL RIGHTS AND CIVIL LIBERTIES
COMMITTEE ON OVERSIGHT AND REFORM
Washington, D.C.

The subcommittee met, pursuant to notice, at 2:17 p.m., in room 2154, Rayburn House Office Building, Hon. Harley Rouda, presiding.

Present: Representatives Rouda, Maloney, Tlaib, Gomez, Norton, Green, Palmer, and Gibbs.

Mr. ROUDA. The committee will come to order. Without objection the chair is authorized to declare a recess of the committee at any time.

I now recognize myself for an opening statement.

This is the final hearing in the Environmental Subcommittee series on climate change. Last year, the subcommittee explored the early scientific consensus on climate change, a reality confirmed in the 1970's and 1980's by internal scientists at major fossil fuel companies such as Exxon and Shell concluded that climate change was real, and it was caused by fossil fuels. This reality was later denied by those same companies once the United States began to take action to address climate change and global warming.

In subsequent hearings and briefings the subcommittee examined and laid out the current devastating consequences of climate change for public health, the frequency and severity of natural disasters, and our economic well-being.

We are seeing the devastating effects of climate change right now. In addition to the devastating loss of more than 200,000 lives from the coronavirus, we are also seeing climate-fueled disasters impact the safety and security of Americans across the country. The entire West Coast of the United States is currently experiencing debilitating fires. Washington Governor Jay Inslee said it best, "These are not just wildfires. These are climate fires."

We are experiencing destruction and loss of life on an unprecedented scale, and there are still many months of expected fire activity ahead. My home state of California's wildfire season is already the most severe in modern history. More than 2.5 million acres have already burned, nearly 20 times what had burned at this time last year. In fact, the five largest wildfires in California's

history have all occurred in the last three years, and one on these five wildfires, three have started this year.

As a result of warming ocean waters we are currently experiencing what is shaping up to be the worst hurricane season in history. The breakneck pace for named hurricanes has far outpaced the 11-storm seasonal average. In fact, we have already run out of names and are now using the Greek alphabet to name storms. This has only happened one other time in our history.

And to make matters worse, in August, amid a historic heat wave in the West, Death Valley, California, saw 130 degrees Fahrenheit, which ranks among the top three highest temperatures ever measured on the planet at any time, and may, in fact, be the highest ever.

I have often said that the difference between taking climate action and the continued abdication of our responsibilities will result in either a world of opportunity or apocalyptic reality. Unfortunately, we are already seeing what a lack of action means. Action is our only choice, especially when you take into effect how inaction on climate change would affect our economy. And let's be clear, this is not a partisan perspective. It is what we are being told by the experts.

According to the Trump administration's own Fourth National Climate Assessment, continued greenhouse gas emissions could decimate up to 10 percent of the gross national product by 2100. However, if we choose to act on climate change and if nations meet the Paris Climate Accord's goal of maintaining a 1.5-degree Celsius rise in global temperature by 2100, global GDP would increase by $20 trillion, compared with a 2-degree Celsius rise. Again, action on climate makes good economic sense.

By recognizing the challenge at hand, seizing this moment and prioritizing justice and equity in the transition to the future, we have the potential to usher in a new era of economic growth, job creation, and opportunity for all Americans. While the challenge is great, the opportunities are even greater. Harnessing American ingenuity and innovation through investment and incentives will create the jobs of the future. Indeed, it already has.

Developing and deploying new and emerging technologies for reducing greenhouse gas emissions and mitigating existing carbon pollution is good for business. Some of the largest companies are already pivoting and making sizable investments in these tools. Advancing strategies to de-carbonize the industry and achieve net zero emission goals will result in economic growth. We are already seeing cities and states across the country rise to the challenge in the absence of Federal leadership.

The Federal Government is the largest employer in the United States, the largest purchaser of goods and services in the world, and an important partner to states, localities, tribal governments, the public and private sectors, and other countries. The Oversight Committee's climate change agenda aims to utilize the Federal Government's unique position in the fight against climate change by making important reforms in the pursuit of greener, more efficient, and more just policies, programs, and processes. Alongside Chairwoman Maloney, I am proud to introduce the Federal Agency

Climate Planning Resilience and Enhanced Preparedness Act as part of this forward-looking agenda.

Climate change is an existential problem. It threatens every aspect of humanity's existence. The decisions we make now will affect life on Earth for generations to come. We cannot afford to be idle. We do not have time to waste. It is actually pretty simple. If we refuse to rise to meet this challenge, our children, our grandchildren, and future generations will be left with a planet that none of us want to see, and history will judge the actions we take now. This is an inflection point. When future generations look back at this moment, will we be able to say that we did all we could, or will they tell us that we let them down?

The eyes of the future are watching, and we will not get a second chance to get this right. We must look beyond our time to ensure a just and livable future for all.

Thank you. I now turn to the subcommittee's ranking member, Mr. Green, who I welcome to the subcommittee as our new ranking member, the esteemed colleague of ours from Tennessee, for his opening statement.

Mr. GREEN. Thank you, Chairman, and I really appreciate and am excited about being on the committee and the opportunity to work with you on this very important issue. I want to thank the witnesses that will be here today and their willingness to appear before the committee to discuss the path forward on a sustainable future.

I would like to begin by discussing the amazing progress the United States has made on sustainability. We are leading the world in reducing emissions. According to the International Energy Agency, and I quote, "The United States saw the largest decline in energy-related CO2 emissions in 2019, on a country basis. Because these reductions have come via innovation and market forces, energy costs have significantly decreased nationwide."

Over the summer, the EPA released its annual Air Quality Report. From 2017 to 2019, under the leadership of the President, air pollution emissions have dropped seven percent. Due to these falling emissions, the United States saw a substantial improvement in air quality. The number of days listed as unhealthy for sensitive groups in the Air Quality Index dropped by 34 percent from 2017 to 2019.

The EPA has made large strides in many areas when it comes to environmental protection. According to the EPA Administrator Andrew Wheeler, quote, "EPA has delisted 27 Superfund sites, the most in a single year since 2001, and plans to delist 27 more this year. The EPA has also helped finance more than $40 billion in clean water infrastructure, supporting 7,100 high-priority projects and 27,000 jobs during President Trump's first term," end quote.

Although it is not widely reported by the media, the Trump administration's EPA is continuing to hold corporations accountable for environmental crimes. Earlier in September, the EPA reached a settlement with Daimler Chrysler, Daimler AG, for $1.5 billion over Mercedes-Benz's emissions cheating scandal. These statistics are truly amazing. The Trump administration is making substantial progress to protect the environment while simultaneously growing the economy, and I know firsthand that Americans across

the country are also taking the initiative to protect the environment.

Earlier this year, I had the idea to plant trees in Tennessee's highway interchanges, which not only would reduce CO2 through both the withdrawal of it by trees and decrease the production of CO2 from the mowing. The icing on the cake is beautification. I mean, who doesn't love a tree? Because of House ethics rules, though, I couldn't really be involved with it, so I shared my idea with friends back home who formed an entity and are going to be planting trees in interchanges all across Tennessee starting in November.

What we cannot do, though, is resort to fear tactics to scare people into action regarding climate change. It is not healthy or productive, and the mental health impacts regarding the fear of climate change are growing at a staggering rate. A survey of 30,000 people worldwide found that nearly all of those people believed climate change would make humanity extinct in the coming years.

Doomsday scenarios, almost all of which have been proven wrong, push people out of this discussion. We have all heard them and we have heard the revision of those predictions each time they fail, and I believe they only serve to push reasonable people out of the discussion. It is an important discussion.

I hope that our committee can move past those doomsday scenarios and headlines and focus on the policy steps we can take, we can be taking right now, and what their costs and impacts really are. After multiple hearings on climate change this year, I am encouraged that we will be hearing from majority witnesses who will hopefully describe a sensible path forward to safeguard America's health, unlike unrealistic pipe dreams such as the Green New Deal. According to a study performed a minority witness, one part of the Green New Deal would cost an average family $165,000 and wipe out 5.2 million jobs with negligible climate benefit. I fear that a premature move away from fossil fuels, particularly in poor areas, means that they will continue to have little access to the type of cheap, reliable energy that enables economic growth and allows for the provision of clean water and sanitation, widespread vaccination, and preventive child health services.

I know that from my constituents in Tennessee clean air and clean water are vital to their livelihoods and well-being, and as for me, I am a fly fisherman. I want my streams clear and I want to trout in them not to glow.

It is important, also, for a robust economy. The United States is fortunate to have copious clean energy natural resources, and we must use those resources to advance American interests while continuing to lead the world in emission reductions. Inexpensive, accessible energy has led to technological medical and other advances that have driven the American economy and increased U.S. life expectancy.

Thank you, Mr. Chairman, and again, I really look forward to working with you.

Mr. ROUDA. Thank you, Ranking Member, and likewise looking forward to working with you as well.

At this time I have the honor to recognize the chairwoman of the entire Oversight Committee, Chairwoman Maloney, and also I

would like to express my thanks for her tremendous leadership in multiple areas, from helping save the United States Postal Service, making sure we have a fair and just census, and for helping on these key environmental issues that our country faces. Thank you for your leadership.

MRS. MALONEY. Thank you so much, Mr. Chairman and Mr. Ranking Member, for having this incredibly important hearing.

As we commemorate Climate Week 2020, I want to start by commending Chairman Rouda on his remarkable leadership on this subcommittee and on one of the most urgent global crises defining the modern era. From devastating fires in the West to historic hurricanes in the South to rising sea levels that threaten 40 percent of America's population near our coastlines, the destruction of climate change is mounting and menacing.

From his first days in Congress, Chairman Rouda has recognized the existential threat that climate change poses to Americans and people around the world. With this series of hearings he has demanded accountability from fossil fuel companies. He has exposed their undue influence over this administration, and he has demonstrated a steadfast determination to meet these challenges to ensure a more sustainable and livable future for our children and grandchildren.

Building on Chairman Rouda's great work today I released the Oversight Committee's Climate Change Agenda. This is a set of bills to implement recommendations from the Select Committee on the Climate Crisis that fall within our jurisdiction. Our Committee's Climate Change Agenda focuses on the Federal Government's unique position in the fight against climate change. The Federal Government is the largest employer in the United States and the largest purchaser of goods and services in the world. It is an important partner to states, localities, tribal governments, the public and private sectors, and other countries. Our agenda takes advantage of this leverage to move our country forward.

For example, Chairman Rouda and I are introducing a new bill called the Federal Agency Climate PREP Act. Senator Amy Klobuchar is introducing the same bill in the Senate. Our legislation is modeled on two Executive orders issued by President Obama to build climate change preparedness, mitigation, resiliency into all aspects of Federal Government operations. Our bill would require each agency to create a climate change adaptation plan, with strategies for confronting risk to agency missions, operations, and programs. These plans would address any agency's practices that worsen climate change threats, and they would identify strategies to tackle the disproportionate impacts of climate change on frontline communities and vulnerable populations. Our bill also would establish a Council on Federal Agency Climate PREP to guide the implementation of Federal preparedness and resilient actions and to work with state and local leaders to improve Federal efforts to support these goals.

An effective Federal response to climate change begins with evidence-based planning that recognizes the magnitude of the threat and responds accordingly. American lives, livelihoods, ecosystem security, prosperity depend on strategic and whole-of-government efforts in the face of climate crisis. Our committee's Climate

Change Agenda also includes other innovation-and action-oriented legislation by our colleagues, including Representatives Don McEachin, Julia Brownley, Peter Welch, Matt Cartwright, and many others.

For example, it includes a bill I introduced with Representative Gerry Connolly, the chairman of our Subcommittee on Government Operations, and Representative Jared Huffman, that would build a fleet of the future at the Postal Service by upgrading its vehicles to electric or zero-emissions by 2040.

Today's hearing is an important opportunity to look forward to identify change like these that are doable, that are within our power, and then to take action. I thank you, Chairman Rouda, again, for your invaluable partnership and your leadership on this critical, critical issue, and I yield back.

Mr. ROUDA. Thank you, Chairwoman Maloney, and again, thank you for your incredible leadership. Ranking Member, would you like to add any additional commentary before we go to the witnesses?

OK. Now I would like to introduce our witnesses. Our first witness today is Robert C. Orr, PhD, who is the dean of the University of Maryland School of Public Policy. Next, we will hear from Rachel Cleetus, PhD, who is the Policy Director of the Climate and Energy Program of the Union of Concerned Scientists. Then we will hear from Christopher Castro who is Senior Advisor to Orlando Mayor Buddy Dyer and Director of Sustainability and Resilience for the city of Orlando. We will also hear from the Republican witness, Kevin Dayaratna, PhD, who is a Principal Statistician, Data Scientist, and Research Fellow at the Institute for Economic Freedom for The Heritage Foundation. Finally, we will also hear from Reed Schuler, who is the Senior Policy Advisor at the Office of the Governor for Governor Jay Inslee of Washington State.

The witnesses will be unmuted so we can swear them in. Please raise your right hands.

Do you swear or affirm that the testimony you are about to give is the truth, the whole truth, and nothing but the truth, so help you God?

Mr. ORR. I do.

Ms. CLEETUS. Yes.

Mr. CASTRO. I do.

Mr. DAYARATNA. I do.

Mr. ROUDA. Let the record show that the witnesses answered in the affirmative. Thank you.

Without objection, your written statements will be made part of the record. With that, Dr. Orr, you are now recognized for your testimony.

STATEMENT OF ROBERT C. ORR, PhD, DEAN, UNIVERSITY OF MARYLAND, SCHOOL OF PUBLIC POLICY

Mr. ORR. Thank you, Mr. Chairman. Chairwoman Maloney, Chairman Rouda, Ranking Member Green, and members of the subcommittee, thank you for this opportunity to testify before you.

Today we face a climate reckoning that imperils our planet and our country. In the last month alone we have witnessed the American West burn, the South flood, and the Midwest ripped by severe

storms, all indications of the new abnormal that climate change visits upon us year after year.

I will focus my remarks today on enhancing our economic transformation and competitiveness and building our resilience to inevitable climate shocks. Addressing climate change is at its core an issue of economic development strategy. The countries that transition their economies most adroitly will benefit the most. Around the world, governments are using their policy levers to position themselves. Unfortunately, the United States, at the Federal level, is moving in the opposite direction, letting others seize the commanding heights of the 21st century economy.

We are seeing this competition play out in many areas, three of which I will discuss today. First, renewable energy. Looking at the $2.6 trillion investment in renewable energy capacity over the last decade, China has captured 31 percent of the total and the U.S. only 14. There is only one U.S.-based company in the top ten global wind manufacturers. This is a consequence of deliberate policy efforts by governments. Meanwhile, the United States is asleep at the switch.

Historically, the Federal Government played a key role in the development of renewable energy and it must do so again. While many governments are using economic recovery funds to stimulate their industries of the future, in the U.S. we have committed $72 billion of public money to support fossil fuel, compared to only $27 billion for renewable energy. As we invest in the recovery, the extension of tax incentives for renewable energy generation should be central.

Second, policy and market forces are shifting the automotive industry toward electrification. Top automotive manufacturers plan to spend more than $300 billion globally over the next 10 years to increase production of electric vehicles, and 17 countries, and now California, have announced the phase-out of the internal combustion engine altogether in passenger cars. Yet China commands 50 percent of the electric vehicle production and produces 11 times the number of battery cells than the U.S., again, asleep at the switch.

The European Union has placed support of the clean energy transition at the core of its 750-billion-euro recovery package. China, Korea, and others the same. In the U.S., nothing. The significant downward revision of the CAFE fuel standards has had the effect of taking our foot off the accelerator just as others are racing toward the electric transition. The Federal Government needs to reintroduce ambitious mileage standards. Our auto companies can compete.

Third, smart electrical grids have arisen as the critical infrastructure of the 21st century. Over the last decade, China has invested more in its electric grid than the United States has in all but one of those 10 years. China has prioritized ultra-high voltage transmission grids in its pandemic recovery plan and will spend nearly $27 billion in 2020 alone.

The scale of investment needed in this area demands a coherent U.S. Federal Government response. A bipartisan infrastructure package that privileges great modernization in partnership with the utility industry is both necessary and possible.

Even as we pursue competitive strategies to mitigate climate change, we must also dramatically increase our resilience to the profound and increasing impacts of climate change. First, health. Extensive research points to tight linkages between climate change and the adverse health impacts of air pollution and heat-related illnesses. The U.S. Federal Government can help address growing climate health nexus by fully funding research into extreme weather, particularly through NOAA, as well as health impacts of extreme weather by NIH.

Second, increased resilience will require addressing our public and private insurance system's declining ability to adequately protect Americans against risk in the face of climate change. The Federal Government's National Flood Insurance Program and Federal Crop Insurance Corporation need to be reviewed and reformed in light of the changing risk equation posed by climate change, and if they are not they will continue to support, at increasing cost to taxpayers, behaviors incompatible with our new climate realities.

Finally, climate change is a global problem that requires global solutions, and the United States has been central in organizing the world to respond to this challenge from the beginning. In the past four years, however, the United States has abdicated its global leadership position. Two days ago, President Xi Jinping of China announced China's intent to reach net-zero climate emissions before 2060, while the European Union announced plans to do so before 2050. The United States can and must move from missing in action to leading the action. The Federal Government can transform itself from ballast to catalyst by leading national efforts to leverage the many U.S. strengths to promote a race to the top with other countries, a race that everyone can win by doing more, faster.

Thank you, Mr. Chairman.

Mr. ROUDA. Thank you, Dr. Orr. Dr. Cleetus, you are now recognized for your testimony.

STATEMENT OF RACHEL CLEETUS, PhD, POLICY DIRECTOR, CLIMATE AND ENERGY PROGRAM, UNION OF CONCERNED STUDENTS

Ms. CLEETUS. Hello, and thank you, Chairwoman Mahoney, Chairman Rouda, Ranking Member Green, and members of the committee for providing me the opportunity to testify here remotely today. My name is Rachel Cleetus, and I am the policy director for the climate and energy program at the Union of Concerned Scientists.

Our nation faces multiple compounding crises right now—the COVID–19 pandemic, an economic crisis, the climate crisis, and a longstanding crisis of systemic racism. These crises have also laid bare and exacerbated the fundamental socioeconomic inequities of our society. We must respond with bold, multifaceted, and just solutions at the Federal level, which can help our Nation recover and rebuild from the current crises while also setting us on a path to a fairer, healthier, more prosperous, and climate-safe economy in the long term.

We have just passed a tragic milestone of 200,000 deaths from COVID–19, 6.9 million cases. Millions of people are out of work,

many facing a loss in unemployment benefits, potential eviction, loss of health insurance.

Meanwhile, the climate crisis continues unabated. As Chairman Rouda says, we are in the midst of a devastating, unrelenting hurricane and wildfire season, and these climate extremes we are experiencing are very costly, with the Nation experiencing multiple billion-dollar disasters. The science is clear that if we fail to limit our

[inaudible] emissions,these kinds of impacts will worsen considerably.

That is why, increasingly, across the board, including major financial sector assets like bonds, businesses, regulators in the financial sector, many are sounding the alarm. The Government Accountability Office has repeatedly flagged climate change as a key area of fiscal exposure for the Federal Government, calling for better management and risk reduction.

Our own research at UCS shows that under the high sea rise level scenario, by 2045 about 325,000 coastal properties, worth $136 billion will be at risk of chronic flooding, and that rises to approximately 2.5 million U.S. coastal homes and commercial properties currently worth more than $1 trillion by the end of the century. Without global action to reduce heat-trapping emissions, our research also shows that the number of days per year when the heat index exceeds 100 degrees Fahrenheit would more than double from historical levels to an average of 36 across the country by midcentury and increase fourfold to an average of 54 by late century.

UCS has also analyzed the threats of sea level rise to military installations in the U.S., which would pose significant risks to servicemembers and essential operations. For example, of the 18 military installations along the coasts that we analyzed, by 2050 most of these installations will see more than 10 times the number of floods. Eight bases are at risk of losing between 25 to 50 percent or more of their land by the end of the century, and four are at risk of losing 75 to 95 percent of their land. By midcentury, more military installations in the U.S. could experience nearly five times the

[inaudible].

The good news is we can limit the costs and harms of climate change if we make investments in a just and equitable transition to a low-carbon, climate-resilient economy immediately. We have to get on this task. States, cities, businesses, and ordinary people are leading the way, but we cannot achieve our goals without robust Federal action.

The U.S. must contribute its fair share to global goals by achieving net-zero carbon emissions no later than 2050 and cuttings its emissions by at least half by 2030. We need Federal policies to use renewable energy and efficiency

[inaudible] modernized electricity, electrifying transportation, and other

[inaudible] investing in R&D, investing in climate-smart agricultural and forestry practices. This is a part of our future that we should embrace, because not only will we cut carbon emissions, we

can also create jobs, build public health, and address longstanding inequities.

We have to invest proactively in resilience to help prepare and protect communities. The climate agenda must address the cumulative burden of toxic and harmful pollution in overburdened communities, ensuring that they also benefit directly and equitably from our investments in clean energy. A fair conviction that is also centered on needs of working people, making sure that they are providing retiree pensions and health benefits, training, job opportunities, and investments in communities that are being hurt as they move away from fossil fuels.

Our ability to solve these challenges like COVID–19 and the climate crisis depend on working together with the global community. We urge Congress to engage directly and move forward with a direct diverse set of statements to pass legislation. We welcome the majority report from the House Select Committee and the climate agenda that has been put forward by this committee today by Chairwoman Maloney and Chairman Rouda.

I want to say that our children deserve to know that we will come together to do our utmost to safeguard their future in the face of the climate crisis, just as we are trying to do right now in the midst of COVID–19. Let us not get into short-sightedness and selfishness. Let's be guided by the science and do what is right. States shouldn't be...

[inaudible].

Thank you so much for the opportunity to testify today.

Ms. TLAIB.

[Presiding.] Thank you so much, Doctor. I will now recognize Director Castro. You are now recognized for your testimony.

STATEMENT OF CHRISTOPHER CASTRO, SENIOR ADVISOR TO ORLANDO MAYOR BUDDY DYER; DIRECTOR OF SUSTAINABILITY AND RESILIENCE, CITY OF ORLANDO

Mr. CASTRO. Thank you and good afternoon, Chairman Rouda, Chairwoman Maloney, Ranking Member Green, and distinguished members of the subcommittee. It is with great honor and privilege that I appear before you today. My name is Chris Castro, and over the last 14 years I have devoted my studies and my professional career and my life to advancing solutions to the climate crisis and implementing sustainability strategies that aim to improve health and well-being of our community, our environment, and our economy.

Today I come before you on behalf of the city of Orlando, Florida, in my capacity as the senior climate advisor to Orlando Mayor Buddy Dyer and the director of the City's Office of Sustainability and Resilience. In this role, over the last six and a half years, I have helped to foster a wide array of public policies, community programs, and creative partnerships that aim to advance local climate solutions and our collective vision of Orlando becoming a model city of the future, one of the most environmentally friendly, socially inclusive and equitable, and economically vibrant cities in America.

Orlando has quickly become a critical player in the climate leadership and innovation in Florida and in the Southeastern United

States. We became an early signatory of the Paris Climate Agreement for cities in 2016, joined the Global Covenant of Mayors for Climate and Energy, sit on the steering committee of the national U.S. Climate Mayors network, and currently a winner in the American Cities Climate Challenge.

In Orlando, we utilize the most accurate science and data to determine our client action strategy. After performing an annual greenhouse gas emissions inventory for the last 12 years, we have uncovered that the majority of our carbon emissions, 72 percent, were associated with energy use in commercial and residential buildings, followed 25 percent from transportation, and the rest from our waste system.

Following a year's worth of community engagement and feedback sessions we developed the Green Works Orlando Community Action Plan, which provides a comprehensive set of goals, objectives, and strategies that are guiding our pathway forward toward a net-zero carbon future by 2050.

With the remainder of my time I plan to share high-level highlights of these solutions.

The first priority in addressing the climate crisis, we have been boosting energy efficiency in existing buildings and spurring green construction. With buildings contributing the vast majority of our emissions, and often wasting up to 30 percent of the energy used, we have prioritized energy efficiency in buildings as one of the most cost-effective and impactful climate solutions today.

Learning from the efficiency investments made through the EECBG funding provided during the Recovery Act, the city decided to pursue a $17.5 million municipal green bond to invest in city property, retrofitting outdated city buildings with high-efficiency technologies like LED lighting and HVAC technologies, building controls, and even rooftop solar. Today, we are saving over 20 percent of the energy when compared to the baseline across over 7 million square feet of real estate and more than $2 million in operational cost savings per year.

Regarding new construction, we have established a mandatory green building policy for the city, similar to the Federal rules, resulting in LEED certification for city-owned buildings since 2012. And to go further, we have established green affordable housing criteria for city-supported housing projects that begin to address high energy burdens in low-income communities.

Our second priority focuses on decarbonizing our electricity generation and rapidly advancing renewable energy. Despite the strong dependence on fossil fuels, over the last few years a solar panel installer has become the fastest-growing job of any sector in the state of Florida, but yet we only get less than two percent of our electricity from this abundant resource.

In partnership with our hometown utility, OUC, we are ramping up solar in our community as a green economic development strategy, installing rooftop solar arrays on city buildings, solar canopies over parking lots, ground-mounted solar on brownfield sites, and even floating solar at the Orlando International Airport stormwater ponds.

Our ultimate goal in Orlando is to achieve net-zero carbon and 100 percent clean and renewable energy sources by 2050 citywide.

Our third priority focuses on accelerating the adoption of zero-emission electric vehicles and E-buses. With transportation contributing to 25 percent of our emissions in Orlando, we have been looking to address this by enhancing more safe and alternative transportation options to reduce vehicle miles traveled in the city as well as ramping up EVs. Today more than 500 publicly available EV charging stations have been installed throughout the city at parks, rec centers, at different parking garages, even major destinations, making us a top EV-ready destination.

We are purchasing more electric vehicles for our city fleet every single year, and in partnership with the Central Florida Regional Transit Authority, known as LYNX, we will begin to deploy electric buses this month in an effort to transition the entire public transportation fleet to electric and alternative fuel by 2030.

In closing I wanted to highlight a few ideas of Federal support that could propel our efforts even further. One, I focused on refunding the EECBG program that has catalyzed clean energy implementation at local levels over the last 10 years. Second, extend the investment and production tax credits for wind, solar, electric vehicles, and batteries, and consider reallocation of Federal subsidies that exist in other legacy technologies.

Standardize the cost-effectiveness tests used at state energy efficiency programs to ensure that efficiency is considered a "first fuel" in utility rulemaking. Assist public transit agencies in electrifying their bus fleets by expanding the Low-No grants and other financing mechanisms and continue to explore putting a price on carbon or another form of valuing the externalities that are currently accelerating the problem.

If you take anything away from this testimony, I hope that you realize that the work that is happening at the local level in cities like Orlando is not only happening, but it is showing measurable progress, and momentum is building. But there is no doubt that we need Federal climate leadership, partnership, and support, now more than ever, to help double-down on the climate solutions that advance a greener and more equitable future for all Americans.

Thank you all for your service and I look forward to your questions. I yield back.

Ms. TLAIB. Thank you so much, Director Castro. I want to thank you and now recognize Dr. Dayaratna. You are now recognized for testimony.

STATEMENT OF KEVIN DAYARATNA, PhD, (MINORITY WITNESS), PRINCIPAL STATISTICIAN, DATA SCIENTIST; RESEARCH FELLOW, THE HERITAGE FOUNDATION

Mr. DAYARATNA. Thank you Chairman Rouda, Ranking Member Green, and other members of the subcommittee. Thank you for the opportunity to testify about climate change and sustainability. My name is Kevin Dayaratna. I am the Principal Statistician, Data Scientist, and Research Fellow at The Heritage Foundation Center for Data Analysis. The views I express in this testimony are my own and should not be construed as representing any official position of The Heritage Foundation.

Energy is literally the basis of anything and everything we do, from flipping on a light switch to starting up your car, to enabling

this very hearing to operate, and unfortunately many people take energy for granted. Over the course of this past decade, it has been a fundamental goal of policymakers in Washington expand regulations across the energy sector of the economy to address climate change.

During my work at Heritage, my colleagues and I have used various academic models that have been used to quantify the economic effects of climate change as well as the economic impact of the associated regulations. In our published work, we have found that statistical models aimed to quantify the economic effects of climate change are nowhere near robust enough to be suitable to guide regulatory policy. Furthermore, the regulations associated with decarbonization will result in devastating economic impacts with negligible impact on the climate.

The primary metrics used by policymakers to justify carbon-based regulations is the social cost of carbon, which is defined as the economic damages associated with a metric ton of carbon dioxide emissions summed across a particular time horizon.

There are three primary statistical models that the Federal Government has called on to estimate, in the past—has called on in the past, excuse me—to estimate the SCC: the DICE model, the FUND model, and the PAGE model. Over the course of my work at Heritage, my colleagues and I have used the DICE and FUND models, testing their sensitivity to a variety of important assumptions. Our work, published both at Heritage as well as in the peer-reviewed literature, has repeatedly demonstrated that while these models might be interesting for academic exercises their assumptions can be easily manipulated by regulators and bureaucrats.

These models make fundamental assumptions regarding climate sensitivity. The idea is that these models attempt to forecast temperatures centuries into the future to quantify the associated costs of CO2 emissions. A very reasonable question to ask is how accurate these forecasts actually are. Equilibrium climate sensitivity distributions are used to quantify the earth's temperature response to a doubling of CO2 concentration. A vast amount of recently published research has shown lower than expected climate sensitivity to CO2. Indeed, our modeling has found recent sensitivity assumptions lowered the SCC by as much as 80 percent compared to Federal Government estimates.

A more fundamental question completed avoided by the Federal Government is, are there actually any benefits associated with CO2 emissions? Well, the model often employed by the EPA actually includes these benefits in its calculation. In fact, under very reasonable assumptions there are substantial probabilities of a negative SCC, or in layman's terms, actual benefits, in some cases as high as two-thirds, resulting from greater CO2 prevalence, allowing increased agriculture and forestry yields. This negative SCC estimate would signify that CO2 emissions are not a cost but a benefit to society.

Now I, of course, don't take the position that CO2 emissions are either an overall positive or negative externality, but the sheer fact that the model could indicate either, under very reasonable assumptions, speaks volumes about how prone it is to user manipula-

tion, which is precisely what government bureaucrats have been able to do in the past.

So, the bottom line is regulations aimed at decarbonization are predicated on models that have been manipulated to justify a particular regulatory agenda. At Heritage, we have used a clone of the Department of Energy's National Energy Modeling System to quantify the economic impact of these and other policies. We modeled the economic impact of the Green New Deal. We found that the economic impacts would be quite devastating. In particular, by 2040, the country would see an average employment shortfall of nearly 1.1 million lost jobs, an up to 30 percent increase in house electricity expenditures, and an aggregate $15 trillion loss in GDP.

Now last, I will talk about the climate impacts of these policies. The primary goal of any of these decarbonization-related policies is to reduce global climate change. At Heritage, we have one of the EPA's actual models, the model for the assessment of greenhouse gas-induced climate change, to quantify the climate impact associated with the policies that I have described. In one series of simulations, we assumed that the United States reduced CO2 emissions by 100 percent and attained a climate that is more sensitive than what was even assumed by the Obama Administration's interagency working group. We found that by 2100, there would be 0.2-degree Celsius temperature reduction and a miniscule 2 cm sea level rise reduction.

In conclusion, statistical models used to quantify the economic effects of climate change are extremely sensitive to very reasonable changes in assumptions, and thus prone to user manipulation. Moreover, the regulatory policies regarding decarbonization will have a devastating economic impact and only negligible impact on the climate.

Thank you for your attention and I look forward to your questions.

Ms. TLAIB. Thank you, Doctor. Mr. Schuler, you are now recognized for your testimony.

STATEMENT OF REED SCHULER, SENIOR POLICY ADVISOR, OFFICE OF THE GOVERNOR, GOVERNOR JAY INSLEE

Mr. SCHULER. Chairwoman Maloney, Chairman Rouda, members of the committee, thank you for the opportunity to testify here today about solutions to the climate crisis. I am Reed Schuler, Senior Policy Advisor for Climate and Sustainability to Governor Jay Inslee of Washington State. Previously, I served at the U.S. Department of State as a negotiator of the Paris Agreement on Climate Change and as a member of the Secretary of State's Policy Planning Staff.

In Washington State, when we talk about the climate crisis, it is in the present tense. This month it took less than a week for fires in our state to grow into the second-worst fire season ever recorded. The worst came just five years prior. These fires are without precedent in modern history. Even for the lucky ones among us, those without asthma, with jobs that allow us to work indoors, with homes that are not in the path of wildfires, the fires were awful, with air quality monitors up and down the coast recording the world's most polluted air. For nearly two weeks I couldn't safe-

ly let my children go outdoors. For the less fortunate, the costs were much greater—hospitalizations, destroyed homes and businesses, lives lost, whole communities devastated.

The fires are changing because the climate is changing, as Governor Inslee has said and the chairman repeated. According to the Federal Government's own assessment, over just the next 30 years, the annual area burned in the western United States could increase two to six times from the present.

Again, as Chairman Rouda emphasized this morning and as Governor Inslee has said, what we are experiencing are not wildfires. They are climate fires. And as Governor Inslee wrote last week in an open letter to the President, "There is no fire suppression plan on this planet that does anyone any good if it doesn't even acknowledge the role of climate change." I want my children to grow up knowing a time year called summer, not fire season.

While the story of these fires may feel distinctly western, climate change will not spare the rest of the country. From flooding, agricultural productivity losses in the Midwest, to rising sea levels in the Southeast, to more and more powerful hurricanes across the East Coast, climate change is spreading a dizzying array of risks across the country, and we know it is felt disproportionately by the most vulnerable among us, including the rural and urban poor, our tribal nations, and communities of color.

But the worst of these risks are not inevitable. They are the costs of failure, and failure on climate change is the path that this administration has chosen. We have witnessed a deep hostility toward environmental stewardship at all levels, and a dismantling of decades of progress in protecting clean air and clean water.

In 41 days, the formal withdrawal of the United States from the Paris Agreement will be complete. We, in Washington State, hope that our natural absence from the agreement will be brief, and so do the nearly 4,000 cities, states, tribes, colleges and universities, businesses, and faith groups who are part of the "We Are Still In" movement across the country.

Governor Jay Inslee is not waiting for sanity to be restored at the Federal level, and neither are the 24 other American Governors who make up the United States Climate Alliance, a coalition that represents the majority of the American population and is leading the way in fighting the climate crisis.

Let me tell you about just some of the solutions that Washington State has put in place. We have ambitious, science-aligned, statutory limits on carbon pollution, and a net-zero goal for 2050 to guide our overall efforts. We have passed a nation-leading clean electricity law that phases out all coal by 2025, requires carbon neutrality by 2030, and achieves 100 percent carbon-free power by 2045, all the while incentivizing high wage and labor standards and increasing resources to assist low-income repayors.

We are implementing a phase-down of super-polluting hydrofluorocarbons, or HFCs, some of which are thousands of times more potent than carbon dioxide. We have created a first of its kind statewide building performance standard for Washington's commercial buildings, helping to incentivize better use of energy and creating new jobs in the building construction trades.

We are using a broad suite of tools to accelerate the deployment of electric vehicles on our roads and reduce carbon pollution from the transportation sector, and we are proud to be both a Clean Car state and a Zero Emission Vehicle state, fighting an illegal effort by this administration to tear down these policies.

These climate solutions help, not hinder, our economy. U.S. Climate Alliance states have reduced carbon pollution at double the rate of the rest of the country, and at the same time we have also grown our economies more than 30 percent faster. So, you can understand why we are not listening to lectures on how to unlock economic growth by letting companies pollute freely.

It is time to embark on a national mobilization to defeat the climate crisis and to harness the innovative, moral, and entrepreneurial spirit of the United States. We eagerly await the necessary restoration of Federal leadership to make that happen.

Thank you to the committee for this important hearing and for the opportunity to testify today, and I look forward to answering your questions.

Mr. ROUDA. Thank you. The chair now recognizes Representative Norton for five minutes of questioning. Ms. Holmes Norton, are you on?

Voice. First of all, I would like to take a moment to thank [inaudible].

Mr. ROUDA. If we could pause for one second here. Somebody is coming through that I don't think has been recognized. If they could mute their microphone. And Representative Holmes Norton, I believe you are ready and able?

While we work on technical difficulties there, I will recognize the vice chair of this committee, Representative Tlaib, for five minutes of questioning. Representative Tlaib?

Ms. TLAIB. Thank you so much, Chairman, and thank you all for being here with all of us.

If this pandemic has taught us anything it is that we cannot simply return to what they called normal when this is all over, because normal wasn't working for millions of Americans across the country and for thousands and families in my district. And author and poet, Sonya Renee Taylor, put it perfectly. She said, quote, "We will not go back to normal. Normal never was. Our pre-corona existence was not normal other than that we normalized greed, inequity, exhaustion, depletion, extraction, disconnection, confusion, rage, hoarding, hate, and lack. We should not long to return, my friends. We are being given an opportunity to stitch a new garment, one that fits all of humanity and nature."

So, to all my colleagues and to the witnesses, in stitching this new garment it is important to consider what it means as we try to transition into a green future and a green economy. My constituents, as chairman knows, who came to my district, knows that they are no strangers to what I call environmental injustice. I represent a district that contains fossil fuel facilities and corporate polluters throughout neighborhoods. As a result of the decades of pollution in my community, many of my neighbors suffer negative health impacts of this country's dependency on fossil fuels and lacks permitting rules, including children who are some of the highest asthma rates in the Nation.

That is why it is important that we talk about climate solutions, we do so in a manner that is intentional and equitable. So, Dr. Cleetus, if we are not intention about centering frontline communities like my district as we fight climate crisis, what will happen to these communities?

Ms. CLEETUS. I think what will happens is already happening all around us, and we are seeing with the COVID crisis, the economic crisis, the climate crisis. This frontline and fence line communities are often the ones who are being disproportionately harmed when it comes to public health impacts, loss of jobs, loss of economic opportunities.

So, what we have here is a very clarifying moment where, as you say, we should not be content with the status quo, business as usual. The good news is the opportunities here are immense, because we can do better. We must do better. With the cost of renewable energy falling year on year by double digits in some cases, with so many communities who are struggling to pay their energy bills who with the right access to these clean energy resources would be so much better off, this is a moment that we should lean into every opportunity we have here to make the kind of Federal Government investments and policies that would solve multiple problems at the same time, address the economic crisis, address these public health challenges, and help us address the climate crisis at the same time. We are not going to solve these crises unless we center equity injustice in our solutions.

Ms. TLAIB. Thank you so much. I also want to spend some time here discussing the urgent need to also plan for impacts of climate change that vulnerable communities already experience and will experience in the near future. According to a report by Union of Concerned Scientists, 175 cities across the Nation will experience extreme flooding events by 2045, with 67 of those communities consisting of above-average poverty levels. As many of my colleagues know, I represent the third-poorest congressional district in the Nation.

So, Doctor, what are some of the climate resiliency measures that can be put in place to protect these communities from extreme weather events?

Ms. CLEETUS. First and foremost, we have to recognize that these communities often are being hit repeatedly by these kinds of extreme weather disasters. With this hurricane season, for example, we have seen the Gulf Coast and East Coast being repeatedly exposed to these harms, the flooding, the loss of power, the public health negative impacts that fall on communities.

So, the kinds of investments we need to make is, first and foremost, making sure that people have safe, affordable housing, that the investments and resilience in floodproofing, fireproofing, heatproofing that we are doing go to all communities. We need to make sure that we are upgrading our housing infrastructure to be energy efficient and climate resilient. We need to ensure that the public health investments that we are making reach people who are marginalized—the incarcerated, the homeless, people who live in public housing.

We need to make sure that people can pay their energy bills to stay safe during extreme heat events. Currently, a lot of people are

living in substandard housing or they can't afford or don't have air conditioning. People need access to these things.

We also need to understand that longstanding systemic racism has created a situation where people have preexisting health conditions that are being exacerbated by climate change, so we have to be addressing that.

Ms. TLAIB. No, and just last and I will yield, it is so important for all my colleagues to know, and I look at one of my senior citizens who told me, especially during this pandemic she felt like the environmental racism, the fact that she lived in the most polluted ZIP code in the state of Michigan, where Chairman Rouda came to visit, she felt like we giving permission to kill her. She really, truly felt completely unseen and unheard, and I think a lot of that is because of the climate crisis, the fact that we haven't really been aggressive enough on the climate crisis.

So, I yield, and thank you again, Chairman, for always highlighting these issues.

Mr. ROUDA. Thank you, Vice Chair Tlaib. The chair now recognizes the ranking member from Tennessee, Mr. Green, for five minutes of questioning.

Mr. GREEN. Thank you, Mr. Chairman, and again thanks to all the witnesses for their time today and their thoughts.

My question, I want to direct my first question to Dr. Dayaratna. Sir, there have been a lot of proposals from the majority that look to address climate change. Many of those proposals aim to do this by introducing taxes and burdensome regulations on the energy sector. Have you done research into the costs and benefits of these policies, and if you could elaborate on that?

Mr. DAYARATNA. Thank you for the question, Congressman. I have indeed. At the Heritage Foundation Center for Data Analysis we have the Heritage Energy Model, which, like I said, is a clone of the Department of Energy's National Energy Modeling System. So, we use this to score various energy policies.

And what we have found is that these policies, they not only failed the test of cost benefit analysis, they failed the test of cost benefit analysis miserably. For example, the Green New Deal, we scored that. That would have, over a 20-year time horizon—and by the way, when I scored the Green New Deal it literally crashed this government model. I had to backtrack the carbon dioxide emissions down from 100 percent to 50 percent or so to get the model to actually be able to handle it.

But the bottom line is even after a 58 percent reduction in CO2 emissions, over a 20-year time horizon, the Green New Deal resulted in an average employment shortfall of 1.1 million lost jobs, a peak employment shortfall of over 5 million jobs, and an average loss of income of over $165,000 of income for a family of four, and a total $15 trillion loss in GDP, all for negligible changes in the climate, less than 0.2 degrees Celsius temperature reduction and less than 2 centimeters of sea level rise reduction.

So, you see it is quite apparent that these policies have significant economic costs—that is an understatement—and effectively no environmental benefit. Very negligible.

Mr. GREEN. Thank you for that. I know that there are a couple of different ways of calculating social costs of carbon, and I won-

dered if you would elaborate on that and perhaps how easily they can be manipulated.

Mr. DAYARATNA. Yes, there are indeed a variety of ways to calculate the social cost of carbon. So, there are three main statistical models, as I alluded to in my testimony, that the Federal Government had used—the DICE model, the FUND model, and the PAGE model.

We took the DICE and FUND models inhouse. The PAGE model we did not take inhouse because the author, Chris Hope, specifically insisted on co-authorship in exchange for giving us his code, so we felt it precluded us from being able to do any independent analysis.

So, we took the DICE and the FUND models, and we played with the assumptions, and what we noticed is that these models are very, very sensitive to extremely reasonable changes in assumptions. For example, these models foolishly make projections 300 years into the future. We have no idea what the American economy will look like 300 years from now. It is like saying that George Washington would know what the economy would look like today. And these models foolishly make these projections.

If you cut the time horizon back to, still unrealistic but more realistic, 150 years, you get a drastically lower estimate of the SCC, around 20 percent lower. If you change the discount rate, specification of a discount rate—in fact, the Obama Administration interagency working group specifically ignored advice from the LMB to include a seven percent discount rate—you not only reduce the social cost of carbon, under some very reasonable assumptions the social cost of carbon can even be negative. And when the social cost of carbon is negative, then that signifies that the benefits exceed the costs, and CO2 is an overall positive externality.

And last, the climate sensitivity distribution. Quite frankly, the previous administration beefed up the climate sensitivity assumptions in the use in calculating the social cost of carbon to beef up the SCC as high as it could. And when you use more realistic climate sensitivity assumptions you can also get a drastically different and lower estimate, potentially even negative estimate of the SCC. Again, under some very reasonable assumptions, it can be negative.

And actually let me just say, since I still have a little bit of time left, in another recently peer-reviewed paper we also looked at the agricultural benefits of CO2 emissions and played with those assumptions, and again, even under the discount rates that the Obama Administration instated on using, even under those you still get a negative estimate of the SCC.

So, with these results literally all across the map—positive, zero, negative—it makes no sense to me how policymakers can even use these models with integrity. Then can be manipulated to get pretty much any result that you want.

Mr. GREEN. One last quick question. I was reading an article the other day in the journal about deserts that are greening. I assume that is from aerial fertilization and the CO2. If you could just talk a little bit about that. I think you implied that when you about the positive impacts, and if you would just elaborate a little bit on that.

Mr. DAYARATNA. So, in one of my recent papers, co-authored with Ross McKitrick and Pat Michaels, we talked about the agricultural impacts of CO2 emissions, and we referenced a paper, "Hsu et al." from the *Journal of Nature* in 2016. What it illustrates is the planet is greening, and some areas are benefiting significantly from greening over the last 20 years.

Mr. GREEN. Thank you. I yield.

Mr. ROUDA. Thank you. The chair now recognizes Representative Norton for five minutes of questioning.

Ms. NORTON. Before I go to my questions, I want to challenge The Heritage Foundation witness to quote experts that agree with his assessment.

I have a question first for Mr. Schuler, because of what is happening as I speak. Can you hear me?

Mr. SCHULER. Yes.

Ms. NORTON. As I speak, because of what is happening as I speak in Washington State. We have a real-time example of record-breaking, in the case of Washington State, wildfires. Of course, we are having record-breaking hurricanes, unprecedented wildfires. I am not sure what kind of evidence more we would need.

Mr. Schuler, if we continue down the path of inaction that the United States is on, like other countries from China to Europe, for example, what are some of the concerns that you would have about the health of Americans living in the western part of the United States?

Mr. SCHULER. Thank you, Congresswoman, for the question. So, health concerns for us are paramount at the moment. Obviously, we are dealing with an extraordinary pandemic, but we see, too, that the effects of climate change, in so many areas of our economy, are worsening existing challenges. So, we are dealing with a whole span of effects, everything from Congresswoman Tlaib discussed the incredible impacts, people in her district, of the fossil fuel industry directly. So, we see these impacts in the form of conventional air pollutants, hurting people's lungs, giving them chronic obstructive pulmonary disease and other respiratory conditions.

Then down the road, as we look at the creeping health effects of climate change it is manifested in so many different areas. The wildfires, as you discussed, are one of the most immediate, and the impact of the smoke on people's lungs is very serious. There is a gradation of air quality index and it starts with, you know, of some concern, of some concern to people with vulnerabilities, and it rises all the way to hazardous for all of us. So, even folks——

Ms. NORTON. We have already seen what the air looks like in Los Angeles. It is incredible to think of people having to live like that. So, I understand your point.

I wanted to ask Mr. Castro, because I wanted to go from the West to the opposite side of the country, to see how universal in many ways climate change is. Mr. Castro, what are the current concerns you have for the city of Orlando, as well as, for that matter, the rest of Florida, the other side of the country? Is there a continuance of absence of—how is the continuance of absence of leadership happening in Florida?

Mr. CASTRO. Thank you, Congresswoman. Certainly Florida is ground zero, as we often say, for climate change impacts, every-

thing from rising sea levels as we are seeing and storm surges that are actually starting to eat away at our coastlines. But obviously the, you know, superstorms that are being fueled by warming oceans—and I think the best example that I can share with you is the 2017 hurricane season that really impacted the entire state, Hurricane Irma and Hurricane Maria.

When we were doing our climate vulnerability and risk assessment, in Orlando specifically, one of the things that has come up is climate migration as a major risk in vulnerability to our city, figuring out ways in which we can essentially welcome an influx of people. It is projected that by the end of this century over 500,000 people may move specifically to central Florida because of climate change impacts directly to the Caribbean and the coastlines of Florida.

So, the health and well-being of Floridians are being impacted because of the lack of leadership, but we are hopeful that we can continue to move forward, and the bill that is being proposed today could be major steps in the right direction.

Ms. NORTON. Mr. Schuler, I must say, because of your previous position, Mr. Schuler, as Secretary Kerry's, on that team that negotiated the Paris Agreement, where there was near universal agreement to try and keep global warming below 2 degrees Celsius, could you briefly describe some other benefits that were discussed which led to that agreement? Remind us about that agreement.

Mr. SCHULER. Absolutely. Thank you, Congresswoman. So, the Paris Agreement was a truly breakthrough, multilateral agreement in our history that required sustained leadership by the United States with our allies and partnership with countries around the world to achieve. It was no easy thing because it required cooperation among countries large and small, countries rich and poor, major emitters and small emitters.

It was all designed around the goal of limiting the most extreme warming and showing every country that through collective partnership, like putting forward strong targets and then seeing the targets of other countries, that we could break through the most incredible collective action problem the world has ever seen, and work together to limit emissions, from major emitters like Saudi Arabia and China and the United States all the way down to tiny island nations with virtually no emissions, but standing to risk extreme sea level rise. And the Paris Agreement was the first major step on that pathway to global harmony with now, as you said, the United States being the only country in the world to signal that we will not be a part of that. It is a truly tragic thing.

Ms. NORTON. I think it—my time has expired but I think it was worth hearing about where we were, the progress we have made, and now how we have been thrust back once again. Thank you very much, Mr. Chairman.

Mr. ROUDA. Thank you, Representative Holmes Norton. The chair now recognizes the chair of the entire Oversight Committee, Chairwoman Maloney.

MRS. MALONEY. Thank you so much, Mr. Chairman. From day one the Trump administration has undermined science and evidence-based strategies to address the climate crisis. We must reverse this damage of the last four years by acting swiftly to make

the United States a leader in the climate challenge and the climate responsibilities.

Mr. Schuler, in what ways would a more coordinated climate resiliency response by the Federal Government assist states such as yours and Governor Inslee's efforts?

Mr. SCHULER. Thank you, Chairwoman. I mean, the benefits would be enormous. Let me just detail a few categories.

So, first of all we would shift some of our efforts from this incredible defensive action that we have all been forced to fight over a period of years. So, a Federal Government that was willing to work with us to set a basic minimum floor for action but to provide resources and help support states in going farther, as compared to this administration, that, instead, has focused its efforts combatting what states are doing, working to restrain us at every chance it gets. It would just be a profound sea change.

So, we look forward to working with a Federal Government that will help us to reduce air pollution from the power sector, from our transportation sector, from industry, provide additional investments in helping to ensure that American businesses are going to, as Dean Orr discussed, be competitive in our global future, instead of harkening back to past technologies that are not going to continue to take us the distance. That would be an incredible thing.

On the resilience side, a Federal Government that is a true partner in helping to defend all of our communities from all of the different climate impacts that they see, that would be an enormous thing. When we hear the President criticize forest management practices in the West, it is not lost on us that his budget annually attempts to strip hundreds of millions of dollars from the Federal forest and firefighting efforts, including investments that go to states.

So, we would look for a Federal Government that has our back and is going to help defend our people against the effects of climate change.

MRS. MALONEY. Thank you. It has been a glimmer of hope that so many states have remained committed to addressing climate change even in the total absence of Federal leadership. Take the United States Climate Alliance. In direct response to President Trump's announcement that he planned to withdraw the United States from the Paris Agreement, Governor Cuomo, Governor Inslee, Governor Brown banded together to create this alliance of Governors who are all working to meet the goals of the Paris Agreement.

Mr. Schuler, I understand from your written testimony that since its inception the alliance has grown to include 25 Democratic and Republic Governors. Could you describe the innovative strategies these Governors are taking?

Mr. SCHULER. Thank you, Chairwoman. So, these Governors, Democratic and Republican, as you said, are the true laboratories of democracy. We are doing that hard work both to experiment with and develop new policies, and also to work in lockstep to accelerate the deployment of policies that we know work. So, we are working in every sector. We are thinking about both how to take forward major areas of progress, like reductions in power sector emissions, with one after another state coming out with a new 100

percent clean electricity law, to cooperation in the transportation sector, increasing the number of states that are signing up to the most aggressive vehicle emission standards, to increasing work in the natural and working lands space, where we can think about how to provide additional incentives to so many different kinds of businesses that make use of lands, from agriculture to forestry, how we can combine the resilience goals with additional carbon sequestration efforts. Our states are working together every single day to make these things happen.

So, it is both about the state-specific work of protecting our own communities from these distinctive harms and taking advantage of our distinctive economies in our own states, and also that collaborative work to push back against the extraordinary assault on environmental protection from this administration over the last few years.

MRS. MALONEY. Thank you. Mr. Castro, could you briefly describe strategies you are implementing to electrify the transportation sector that also may prove to be effective on the Federal level? Mr. Castro.

Mr. CASTRO. Thank you, Chairwoman Maloney. Yes, we are doing a number of things to accelerate more EV adoption. First and foremost, we know that public EV charging stations are really critical for us to get around some of the range anxiety issues that residents have, and folks have around electric vehicles.

We are also working very closely with our utility, as I mentioned, to help enable more rebates for those who buy and lease electric vehicles, and in addition to that, working across with our hospitality and tourism associations and many of the theme parks here in Orlando to ensure that have an EV-ready destination. In fact, in 2015, the city launched the first electric vehicle rental car program, Drive Electric Orlando, where individuals can come here, rent an EV, and have a zero-gas station experience here, zero emissions, and a wonderful experience.

Mr. ROUDA. Thank you, Madam Chair. The chair now recognizes Mr. Gibbs for five minutes of questioning.

Mr. GIBBS. Thank you, Mr. Chairman. Sorry I couldn't be here to listen to the testimony, but I do want to raise some issues with the wildfires out in Oregon and California and Washington State, out west. Does anybody—I just heard a comment from one of the witnesses that it was lack of Federal funding. I don't know if Mr. Dayaratna or anybody wants to comment, if they would allow the timber leased lands and FISA funding, because my understanding, for 20-plus years now, since we pretty much stopped timbering on Federal lands. So, I would like to start there and then I have a submission to make. Does anybody want to address the issue about timbering out there?

I guess not. OK. Mr. Chairman, for the record, as my staff did this, I have two photos, and one—these are photos taken east of Roseburg, Oregon, OK. In the one photo there is a fire. It is not out of control. It is an area that has been timbered, and the forestland has been managed. The other photo is a nearby area where the timberland has not been managed, and it looks like a volcano compared to the other one here.

And this is just illustrating, if we actually manage our forestlands out there, we can prevent a lot of this catastrophe and loss of property and life and everything else that goes with that, and all the carbon that has been emitted into the atmosphere. So, if we are truly concerned about our carbon emissions, we ought to be managing our forestland.

Because I have heard anecdotal information that the lands—there is some land out there that is privately—private forest land is managed, and it doesn't have these fire issues. And if they do have a fire issue it is a lot less severe and they can control it. But when you haven't timbered and done anything at those forestlands in 20-plus years, you have a lot of fuel on the ground, and now, of course, it is warm and dry out there. Fortunately, in the last day or so, there is more rains moving into that area, fall weather, and so hopefully, at least in the Oregon-Washington area that should help fight some of those fires.

So, I just wanted to submit to the record these two photos that my staff sent, illustrating where forestlands have been managed, the damage is less extensive and controllable, compared to an area that has not been managed, that has all that dead wood, brush fuel, to fuel the fires. I don't have any other questions for the witnesses, but I think it is vitally important that we manage these forestlands out there, because I can't—I don't know if anybody wants to comment.

You know, we talked about the smoke. I know we saw smoke in Columbus, Ohio, in some of the sunsets, and you said about the upper atmosphere was carrying it even to Europe, and the carbon that was emitted by this. You know, if anyone wants to comment about, you know, if we didn't have the severity of these fires in these forestlands, what the difference would have been in the carbon emission from these terrible, catastrophic fires. So, I don't know if anybody wants to address that or not.

Ms. CLEETUS. Sure. Thank you, Representative Gibbs, for raising this issue. The reality is that the science shows very clearly that what are driving conditions fueled by climate change are a major contributor to the kind of really

[inaudible] they are seeing in the western U.S. right now. There is no question that mismanagement of forest development in wildfire-prone areas is also exacerbating this, to people, to property, and that we do need to do better with ecological criteria in mind. This is not about timbering. This is about managing the health of our forests, and there are certainly more things that we need to do to address this.

But it would be folly not to recognize the role that climate change is playing, a very, very clear role the significance of climate change in contributing to these hotter, drier conditions that are making our wildfire seasons longer, more intense, more destructive. This is very, very clear——

Mr. GIBBS. I will just stop you——

Ms. CLEETUS.

[Inaudible.]

Mr. GIBBS. I will stop you because I have only got 25 seconds. You know, even a one-degree change, it is hard to believe that that is causing this more severity in the fires, that one-degree change

in the temperature. But I think we could have a more immediate impact by managing these forestlands to prevent the fuel there for these fires. Because it is a long-term goal to address the temperature change that may or may not be causing warmer temperatures and less humidity and drier heat.

So, I would just close. My time is out. But I will submit these for the record and just advocate for let's manage our public forestlands out there and get some revenue from the timber. I yield back.

Mr. ROUDA. And without objection, the documents are introduced into the record. So moved.

Mr. ROUDA. At this time I would like to recognize myself for five minutes of questioning, and I really don't want to focus on empty rhetoric about whether the science is true that humankind is causing climate change. The science is settled. I want to recognize that I am interested in trying to work with members across the aisle as well as members in my caucus to find solutions and not denigrate ideas offered by others.

With that let me turn to some questions here for our witnesses, that I am so thankful who have joined us here today.

We want to look at and understand how the Federal Government can play a greater role in providing the economic incentives to advance changes that truly address climate change, not just here in the United States but globally, and allows the United States to be a leader in creating these new industries, these new good-paying jobs that we can have right here in the United States, as well as export that technology worldwide.

Clearly, transportation and industrial sectors play a huge role in the sourcing of climate change and overall carbon emissions. Dr. Cleetus, which sectors of our economy do you think are best positioned to help drive nationwide decarbonization efforts?

Ms. CLEETUS. Well, right now the power sector is an incredibly promising place to look. We are already in a moment where we have about 20 percent of our electricity is renewable energy. We have seen calls for, here and in Europe, for wind, for solar, for battery storage. The EIA is projecting that wind and solar will be the fastest-growing sources of new power this year in our country.

So, we need to take this momentum and really accelerate it, using Federal policy, and state policies. This is an area where we can create jobs, we can make the kind of investments that would benefit public health, and we can rapidly cut our emissions.

So, I see this as a very promising sector. Transportation, as well, electrifying transportation is a really very great opportunity for us. And as others have pointed out on the panel, other countries are taking these measures. We need to be part of the revolution.

Mr. ROUDA. Dr. Orr, I believe there is a statistic I have come across that for every $1 we have provided in incentives for renewables we have provided $80 for fossil fuels. And I think in your opening testimony you said that even today for every $1 we provide for renewables we provide $3 for fossil fuels.

Can you talk a little bit about what you think the result would be if we at least parity in supporting renewables at the same level we do fossil fuels, or better yet, reverse those numbers 3-to–1 for renewables?

Mr. ORR. Thank you, Mr. Chairman. Indeed it is true that just about all of the analysis about the impacts of investments in renewables come out dramatically in favor of renewables versus fossil fuels. The bottom line is that the industries of the future are not going to be fossil fuel based. The longer we delay our transition to the future energy sources, the more we will be disadvantaged vis-&-vis the rest of the world, but also the more that we will not have the ecosystem that we have depended on in this country for innovation.

If we do not keep up our national R&D investments in areas around energy, around transportation, around batteries, around all the technologies of the future, and we just try to dig in and hold the line with the industries that we have dominated for decades, and even over a century, in oil and gas, coal, if we tried to dig in it is economically foolhardy. But it also stops us from the kinds of investments we need to get the next technologies.

The United States is an innovation powerhouse. I currently work at the University of Maryland. We have the best university system in the world. We have more capacity in our laboratories, in our universities. That can be harnessed. Federal Government funding goes a long way to leverage private funding on innovation.

So, it is the innovation economy that we are talking about here, and that is jobs, and it is jobs that are going to be around for the future. Quite honestly, I think the debates around coal are pretty much settled in the sense that economically it is not viable, but it is around oil and gas that we need to make forward-looking calculations, to save our own jobs but also to build the innovation framework for the future.

Mr. ROUDA. And the energy companies which have tremendous experience in not just the production and development of energy from fossil fuels. They also have tremendous knowledge and innovation in renewables. And if the tax code aligned with producing renewables at a greater rate to drive shareholder value, don't you agree that the energy companies could actually help lead us as we make this shift from fossil fuels and CO2 emissions to renewables as being the fundamental backbone of the energy production of our country?

Mr. ORR. Yes, Mr. Chairman, and it is an extremely important point. Our oil and gas companies need to become energy companies. If we provide the incentives for them, they can compete with anybody in the world. The fact is right now a number of other oil and gas companies around the world, from Saudi Aramco to BP and Shell and any and a whole range of non-American oil and gas companies are diversifying at a rapid clip. American oil and gas companies are not, and the reason they are not is because there is not much incentive here in the United States for diversifying. It would be economically wise but also tremendously important for our climate if our companies lead the way.

Just last year, three U.S. oil companies finally joined the Oil and Gas Climate Initiative. It is a group of 14 different oil and gas companies from around the world that tend to be the most efficient and most effective companies in the oil and gas sector. That is the kind of club that is transitioning itself as fast as it can, because they see their future in that transition. We need to make sure we are

not holding back our own companies from making the transition they have to make to survive.

The issue of fossil fuel subsidies is a global one, and we need to look at our own subsidies and where they go. It totally warps the incentives for our companies to become competitive in the 21st century.

Mr. ROUDA. Thank you. I know I am over time, but I do want to ask one other quick question of Mr. Schuler. Mr. Schuler, Governor Inslee from the great state of Washington has been an advocate for deep economy-wide action to move us to renewables and away from the fossil fuel industry. Is there one thing, one policy that Washington State has implemented that you think would be important to bring to our attention at the Federal level?

Mr. SCHULER. Thank you, Chairman. I think, in brief, probably the one that I would highlight would be our Clean Energy Transition Act, that has promised to take Washington from already one of the cleanest electricity sectors in the country to definitively zero carbon. We are showing that it can be done, that there is political will that we can do this in an equitable way that provides for worker transition, for low-income people, and that at low, low cost can help all of us move to carbon-free power. I think it is a powerful example for the rest of the country, and I hope it is something that the Federal Government can take urgent action on soon.

Mr. ROUDA. Thank you very much. That ends my time of questioning. The chair now recognizes Representative Palmer for five minutes of questioning.

Mr. PALMER. I thank the gentleman. I have a question for Dr. Dayaratna.

In an earlier hearing for this subcommittee your colleague at The Heritage Foundation, Nick Loris, testified that the U.S. could cut its carbon emissions by 10 percent and it would not make much of a difference with regard to warming temperatures. Is that because such cuts would impact only our national emissions and climate change is a global phenomenon?

Mr. DAYARATNA. Greenhouse gas—can you hear me? Yes. Those simulations results are from using the Model for the Assessment of Greenhouse Gas Induced Climate Change. So yes, part of this is because the United States constitutes a small fraction of global emissions, and therefore cutting emissions is not going to have that 10 percent—any meaningful impact whatsoever.

But even if—I was alluding to this earlier—in fact, the slides I gave you guys, if you look at Slide 8, I think they have been printed out for you guys, Slide 8 where I have the climate impact for, say, the Green New Deal, where we simulated the impact of eliminating CO2 emissions from the planet completely. Under a variety of sensitivity assumptions, climate sensitivity assumptions, even assuming a 4 1/2 degree climate sensitivity, which is much higher than what the Obama Administration's interagency working group assumed, and is the upper bound of the IPCC's recommended range of climate sensitivity, you still have less than 0.2 degrees Celsius temperature impact by the end of the century.

So, emissions reductions in the United States are not going to have any meaningful impact, climate-wise.

Mr. PALMER. Well, I don't know if you are aware but I also serve on the Select Committee on the Climate Crisis, and we had a hearing, and among the witnesses was a lady who was one of the editors, one of the lead people on the International Panel of Climate Change. It may have been the fourth or fifth report. I asked those three scientists who were the witnesses for my colleagues across the aisle, if the United States went to absolute zero emissions, would it stop climate change? And their response was no. I followed that up and said if the entire world went to zero carbon dioxide emissions, would that stop climate change? Again the answer was no, it would only mitigate the impact. As you just pointed out——

Mr. DAYARATNA. Yes, I mean, I have done the modeling myself, but there you have it, it is not just me saying it. You have other people saying it as well.

Mr. PALMER. Well, these are people who are proponents of—I would assume are proponents of the Green New Deal, which, as we know, has absolutely nothing to do with climate change. It is more about changing the economy.

But the point is that the things that we are focused on will not impact climate and the climate is changing. This is what concerns me: the climate is changing. There are things that we need to be doing to adapt and mitigate. There is great potential in emerging technologies for addressing CO2 emissions, and other areas that we are going to have to make some changes, that we are not addressing, because we are chasing the wrong thing.

Mr. DAYARATNA. Absolutely. So, I am in favor of, you know, removing all subsidies and credits from the market, and letting all types of energy, completely leveling the playing field, ranging from renewables to all other forms of energy, and letting the best one win. And that would be the most optimal way to deal with the situation.

Mr. PALMER. Well, I have had other witnesses——

Mr. DAYARATNA. Yes, like you said, these policies are not going to have any impact. I mean, you are not going to be able to pass a bill and have it magically changed the weather. It is absolutely ridiculous.

Mr. PALMER. Well, in another hearing I had another witness for my colleagues across the aisle that explained to me that China has an aggressive plan to meet their emissions reductions by 2030. It has now been moved to 2060. But if that were the case China wouldn't be building coal-fired plants, one about every two weeks. I mean, there are just some really absurd things being said and proposed to address climate change that are going to have zero impact.

Mr. DAYARATNA. I mean, that is the thing. So, for those who are serious about changing the climate, I mean, they are just looking at the wrong policies, because a lot of these policies are not going to have any impact. I mean, these bills are not going to magically change the weather. Again, I will reiterate that.

Mr. PALMER. It is going to change the quality of life, though, for individuals, so an impact on the economy.

Mr. DAYARATNA. Yes, they will change the quality of life, yes.

Mr. PALMER. Yes. I yield back and I thank the chairman.

Mr. ROUDA. Thank you. The chair now recognizes Representative Gomez from the great state of California.

Mr. GOMEZ. Thank you so much, Mr. Chairman, and thank you for having this hearing on climate change. One of the things that makes me laugh is that when it comes to showing the United States leadership on this issue, Republicans all of a sudden say, "You know what? We shouldn't do that because the other side, the other countries are not going to follow suit, but they are not doing X, Y, and Z." But sometimes you have to lead, right? Not sitting back and waiting for the other countries to lead, and that is one of the benefits of being the United States. We have the economic power, the cultural power to actually change things, if we decide to engage, right?

We can change things. We can make things better. Right now I represent L.A. in Congress, but I represented L.A. in the State Assembly. We were taking on these issues for a while, by trying to develop policies that not only combat greenhouse gas emissions and lower them, but also the other determinants that are caused by global warming. So, we were looking at it in a more holistic way.

It is something that we know— one thing— is that it costs more not to do anything, right? It costs more in the long run not to do anything. Why is the military concerned about global warming? Why does the military have report on report looking at global warming and how they have to adapt? Because it is real, and it is occurring. So, it is the same thing we should be doing here in the states.

One of the questions I had is, we know climate change has a disproportionate impact oftentimes on people who live in certain areas, people who are often poor that don't have the resources. Dr. Cleetus and Mr. Castro, are there any strategies that we can implement at the Federal level in order to deal with that disproportional impact or help the people that don't have the necessary resources to weatherize their homes, to move from one location to another, to, you know, buy electric cars? Are there strategies that we can implement at the Federal level that really target the working class?

Ms. CLEETUS. Absolutely, and I think the most important thing we need to do is get out ahead of this and make these investments instead of just post disaster, picking up the pieces after the terrible toll that it takes on people.

So, there are some very common-sense things we can do. We can make sure that our investments in resilience and adaptation are being targeted to these communities. Some have suggested a 40 percent off Federal investment targeted to communities that have been marginalized and left behind, communities that are facing a disproportionate burden

[inaudible]. So, that is an important step we can take.

We can make sure that we are extending economic opportunities in these communities and building that kind of infrastructure that is climate resilient and no carbon. We can cut their energy bills by investing in clean energy that is more affordable, so that they are not just being exposed to pollution from fossil fuels as well as paying high energy bills.

So, there are many tools for us here that can help us cut emissions and address these inequities, and we should lean into them.

Mr. CASTRO. And, Congressman, in addition to that great response I would also say that HUD plays an incredible role with the allocation of CDBG and other dollars at the local level, which we depend upon to help build out affordable and attainable housing, and putting restrictions on ensuring that we are not building the worst housing by law but we are really going above and beyond the code to ensure efficiency and not continuing to burden these low-income communities with high energy bills. Often not only are they burdened with higher energy bills disproportionately, they are also often in environmental justice zones throughout our communities that are getting, you know, more impacted by air quality issues. Then, of course, you have the issue around, you know, when we get hit, they are often the least resourced and most impacted and hardest to rebound.

So, you know, I do certainly agree that putting some criteria around those dollars and ensuring that we are prioritizing efficiency into our environmental quality and health of those occupants could make drastic impacts, not only on their lives but on the climate.

Mr. GOMEZ. And that is one of the things that I want people to understand. When we say we are going to combat climate change, it doesn't mean that it will be a cost to people, right, breaking up their livelihoods, how they get from their home to work or school. It is about enhancing and improving their lives. But you have to target the resources to those communities. You can't leave them behind. That is why I introduced a bill to make sure that people who are lower income can get access to electric vehicles at a similar price point.

So, it is all about how do you make life better for people on the ground, and I say if you do that, the coalition to combat climate change will all get bigger and stronger and understands that it is not one thing versus another one, but both of them at the same time.

So, thank you, I appreciate it, and I yield back, Mr. Chairman.

Mr. CASTRO. Thank you, Congressman.

Mr. ROUDA. Thank you. The chair now recognizes the ranking member for any closing comments he would like to make.

No closing comments. With that, a few closing comments on my part. We have had numerous of these hearings, and I know that my colleagues across the aisle don't believe in the Green New Deal. And I think it is not because they don't believe climate change is real. They don't believe that is the right way to address it.

I believe my colleagues across the aisle believe in climate change. I believe my colleagues across the aisle want to address climate change. They believe the science. They believe there are ways we can address it. And I would hope they will work with us to find those policies that we can agree on to advance forward for the benefit of our kids, our grandchildren, and future generations as we all try and address this issue that we know is real. The science supports it. It is not a question of if— it is a question of how we get this done.

Gary—Representative Palmer—would like to make a couple of closing comments as well, so let me defer and yield over to him for a closing statement.

Mr. PALMER. First of all, I would like to thank the chairman for your comments, and I associate myself with your remarks, because we do believe that the climate is changing and it poses serious risk for our country and for our future.

I ran a think tank for 24 years and was very involved in these issues, particularly with climate change. And frankly I am convinced that while CO2 obviously is a—contributes to global warming, if we—as these scientists have said, if we completely eliminated CO2 it wouldn't stop climate change. I think we need to continue to invest in technology to reduce CO2 emissions. MIT is doing some fantastic work on carbon capture, and methane, for that matter.

So, there are emerging technologies, I think, that will really help us in this area. But I think we have also got to take seriously the things that are happening through natural variation, that will result in sea level rise, maybe not at the level that some folks have put out there, and other issues that are going to change weather patterns that we need to be prepared to adapt to.

So, I commend you for your comments and recognizing that this is a serious problem that we do need to work together to solve. And yes, I do not think the Green New Deal is the way to do it, but I do think that we have the capacity, the intellectual, technical capacity to address these issues and do it in a way that not only benefits our country but the whole world.

And I yield back.

Mr. ROUDA. Thank you for your comments, and I also know that we all agree that while we can disagree on the impact and pace of climate change and what are the contributing factors, we all agree that less CO2 emissions is better for our health and the health of our fellow Americans.

In closing, I want to thank our panelists for their remarks. I want to commend my colleagues again for participating in this very important conversation. With that, without objection, all members will have five legislative days within which to submit additional written questions for the witnesses, to the chair, which will be forwarded to the witnesses for their response. I ask our witnesses to please respond as promptly as you are able.

This hearing is adjourned.

[Whereupon, at 3:57 p.m., the subcommittee was adjourned.]