Sustainable Investing in Light of Recent Progress on Climate Change

Remarks by Jason Furman
Chairman, Council of Economic Advisers

RFK Compass Conference
November 13, 2015

As prepared for delivery

I am delighted to join you all at the RFK Compass Conference hosted by Robert F. Kennedy Center for Justice and Human Rights. The issues of justice, human rights, the environment and sustainability are so important and I am glad to be speaking with a group that integrates these considerations into everything that you do. Today I will talk about recent developments in environment and climate and some of the exciting policies that the Administration has advanced along with a preview of where we are in the international discussions leading into Paris in December. I should disclose at the outset that I am not licensed to offer investment advice so I offer these observations in the hope and expectation that all of you who know so much more about investment can understand where we are coming from and can appropriately factor that into your own investment strategies.

Robert F. Kennedy's words best sum up the situation today with climate change: "Tragedy is a tool for the living to gain wisdom, not a guide by which to live."

Indeed, the scientific evidence today is solid and clearer than ever: unfettered climate change can lead to tragedy. Stronger hurricanes have been linked to climate change. The last thing we need is much more frequent Sandy's and Katrina's. Sea level rise combined with stronger storms threatens thousands of coastal homes with flooding. But it is not just hurricanes and flooding. Climate change exacerbates droughts, and California is currently suffering from the worst drought in over a century. With droughts come wildfires. Heat waves can worsen local air pollution and public health in urban areas while also reducing agricultural yields in rural areas. Drier conditions and hotter temperatures also reduce snowfall in our mountains, disrupting the economies of communities reliant on winter sports. These impacts are well-documented and are not just in the far future—they are happening today. And in the future there is the risk of even greater catastrophic damages from ice sheet melting and the changing of ocean currents.

Knowledge of these effects provides us the wisdom to reduce the risk of tragedy. There is a strong economic case to be made for not simply standing by and allowing these impacts to happen.

Today I am going to talk about the real change underway now in the United States due to a set of policies and rulemakings the Administration has developed over the past several years. These initiatives reduce pollution from carbon dioxide and other greenhouse gases—the cause of global climate change—and at the same time promote innovation in new technologies. Each of these has benefits that greatly exceed the costs and combined, these efforts will lead to real progress on climate change here in the United States. Already these efforts have helped to spur commitments

around the world, including China. The Paris Conference of Parties, COP-21, is set to meet later this month, at a time of rapidly building momentum for action. It is critical that we act now as our research has shown that delaying even a decade raises the cost of acting by 40 percent.[1]

All of this action will not only help to reduce the likelihood of catastrophic climate change, but will also affect markets. It will foster innovation, creating new opportunities. It will create jobs in these new industries. All of which investors should and are taking into account as they formulate investment strategies.

The Transformation of Energy Production and Consumption

Before talking about our policy agenda going forward, I want to briefly review the amazing transformation of our energy production and consumption. Of course, there have been the widely reported recent breakthroughs in unconventional oil and natural gas extraction technologies that have led to an explosion in domestic production. But continued technological progress in wind, solar, and biofuels, as well as innovation and deployment policies at the local, State, and federal levels, have caused an equally dramatic boom in the use of renewables. These changes have been a major reason why U.S. energy-related carbon emissions in 2014 were nearly 10 percent less than their peak in 2007, although the fallout from the Great Recession has also played a significant role.

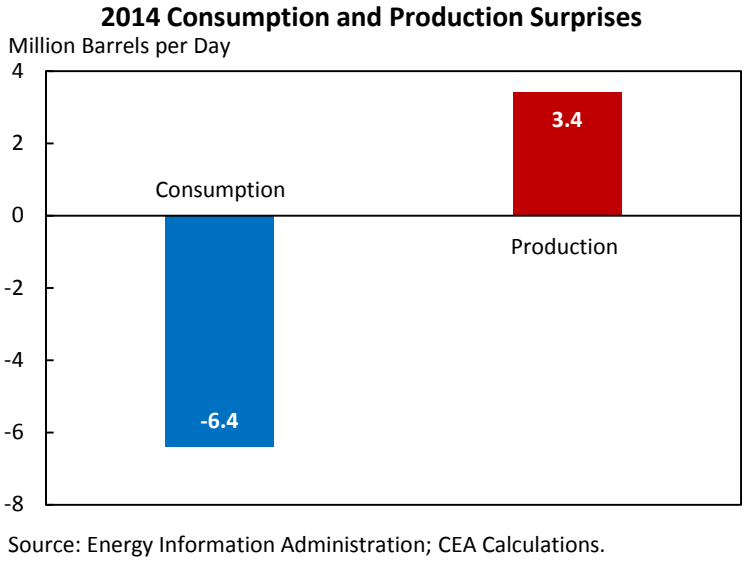
On the supply side, the composition of the Nation's energy sources has begun to shift to cleaner sources: petroleum and coal are now being replaced by sources with lower, or even zero, carbon emissions. In the electric power sector, we have begun to see a shift from coal-fired to natural gas-fired generation which is responsible for half of the carbon emissions of coal. In fact, this year in April for the first time on record, monthly generation of electricity fueled by natural gas exceeded generation from coal. And, though renewables still account for a relatively small share of the Nation's energy supply, that share is growing, and growing quickly. Since 2008, electricity production from wind energy has more than tripled, and solar generation has increased by more than 20 times. In 2014, renewable energy sources accounted for one-half of new installed capacity, and natural gas units comprised most of the remainder.[2] And with the expansion in capacity, these renewable energy sources are becoming increasingly cost-competitive with conventional generation. Between 2009 and 2015, the cost of solar has dropped by 70 to 85 percent and the cost of wind has decreased by 27 to 45 percent. [3] The lower costs only enable further capacity installation, fostering additional innovation and subsequent cost declines.

The transformation that we have seen in the energy sector has been more than just a supply story. Take for example the case of oil. We are in a situation where in the year 2014, Americans consumed less petroleum than they did in the year 1997, despite the fact that the economy was

[1] Council of Economic Advisers. 2014. "The Cost of Delaying Action to Stem Climate Change"
[2] Council of Economic Advisers. 2015. "The Economic Report of the President."
[3] CEA calculations, based on NREL's Annual Technology Baseline and Bloomberg New Energy Finance. http://www.nrel.gov/analysis/data_tech_baseline.html

46 percent larger than it was in 1997. So following half a century in which oil consumption generally rose and rose, it leveled off, and actually declined. This is something that no one was expecting. If you look at the EIA forecasts in 2003—some of the best forecasts around and similar to what others were forecasting—and you compare where they thought we would be in the year 2014 in terms of petroleum consumption, to where we actually were in the year 2014, we consumed 6.4 million barrels per day less than they had expected.[4] So that consumption surprise, the unexpected reduction in consumption, was about twice the magnitude of the recent and unexpected increase in U.S. production, as shown in Figure 1.

FIGURE 1



Source: Energy Information Administration; CEA Calculations.

The Climate Action Plan and Real Progress on Climate in the United States

We have already made substantial progress. But we need to take additional steps to lock in even more progress which is why President Obama announced the Climate Action Plan on June 25, 2013, the first national plan in the United States to reduce the risk of climate change and the organizing principle for a large set of efforts that we are undertaking under our administrative authority.

The Climate Action Plan is divided into three parts. The first outlines steps to cut carbon pollution. The second takes concrete actions to prepare the United States for the economic impacts of climate change, a critical need in light of the very real risks that we are bearing already. The third leverages our domestic actions to provide international leadership to address global climate change. I will talk about all three of these today.

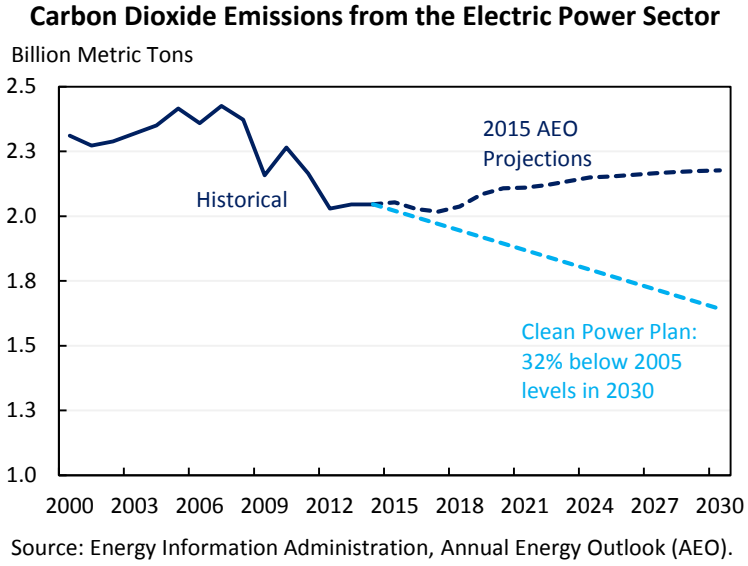
[4] Council of Economic Advisers. 2015. "Explaining the U.S. Petroleum Consumption Surprise."

Under the Climate Action Plan, we have already made great progress, and have set ambitious targets to make substantial reductions in greenhouse gas emissions in the near future. Our latest goal, set just this past March, targets a reduction of greenhouse gas emissions of 26 to 28 percent below 2005 levels by 2025.[5] Prior to the plan, emissions were projected to slightly increase over the next 10 years, and thus the effective reduction from the projected baseline will be even greater than 28 percent.

The Clean Power Plan

How will the ambitious targets from the Climate Action Plan be met? The cornerstone of the Climate Action Plan is the first-ever carbon policy on electric generation in the United States: the Clean Power Plan. The Clean Power Plan is designed to reduce carbon dioxide emissions from electricity generation—roughly a third of the emissions—by 32 percent from 2005 levels by 2030 (see Figure 2). It was a big lift, and perhaps the most complex rulemaking in the history of the U.S. Environmental Protection Agency.

FIGURE 2



The rule is based on establishing emissions reductions for each State based on what they could accomplish using the best system of emissions reductions in three areas: making coal-fired plants more efficient, shifting to natural gas which has half the carbon footprint, and expanding renewables. This analysis is the basis for the State targets but States will have substantial flexibility in designing their own plans for how to achieve these goals. We are making it easy for States to adopt smart, market-oriented approaches like cap-and-trade as well as to facilitate trading across States.

[5] United States submission to the United Nations Framework Convention on Climate Change (UNFCC). https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc

The basic premise of this approach is that government does not know exactly how to reduce emissions but instead wants to give the private sector the incentive to use its ingenuity to solve the problem in the most cost effective manner. In addition, we have put substantial effort into addressing a range of concerns that have been raised including reliability concerns, leakage of emissions to non-covered emissions sources or other states, and monitoring, reporting, and record-keeping.[6]

All of this careful design means that the Clean Power Plan will be reducing emissions at a low cost. In fact, it is projected to save the average household up to $85 per year on their energy bills due to improved energy efficiency. But most importantly, it sets long-term market signals, driving innovation and investments. These market signals begin even before the start of the first compliance period in 2022 with the Clean Power Plan's Clean Energy Incentive Program. This program allows new renewable generation to earn credits that can be traded and used towards compliance during the future compliance period. This provides an incentive for earlier action, further encouraging innovation in clean energy and bolstering the market for renewables for an even smoother glide path for compliance.[7]

The flexibility given to states and the emphasis on economically sensible approaches has meant that many States have already been in touch with the EPA about developing compliance strategies—even States that are suing to stop the regulations.

Fuel Economy Standards

But the Clean Power Plan is only one of many initiatives, and is focused on only the electricity sector. The transportation sector is the second largest source of carbon emissions, representing roughly 33 percent of the total. Significant emissions reductions will also be achieved from fuel economy standards on both light-duty passenger vehicles and medium-duty and heavy-duty trucks. The light-duty fuel economy standards—so-called CAFE standards—are slated to nearly double the light-duty vehicle fuel economy from 2010 levels by 2025. The average fuel economy across the fleet is slated to rise to 54.5 miles per gallon. Think about that: the *average* car ten years from now is going to have roughly the fuel economy of a Prius today.

These light-duty standards will save consumers more than $1.7 trillion at the gas pump and reduce oil consumption by 12 billion barrels over the lifetimes of the vehicles sold through 2025.[8] The truck standard rule, to be finalized within the next year, is slated to reduce tractor trailer fuel consumption by 24 percent, saving truck owners an estimated $220 billion and reduce oil consumption by 2.3 billion barrels over the lifetime of trucks sold through 2027. Combined,

---

[6] Environmental Protection Agency. 2015. Overview of the Clean Power Plan: Cutting Carbon Pollution from Power Plants. http://www2.epa.gov/cleanpowerplan/fact-sheet-overview-clean-power-plan

[7] The White House. 2015. "President Obama to Announce Historic Carbon Pollution Standards for Power Plants." https://www.whitehouse.gov/the-press-office/2015/08/03/fact-sheet-president-obama-announce-historic-carbon-pollution-standards

[8] As per the National Program for greenhouse gas emissions (GHG) and fuel economy standards, developed jointly by the Environmental Protection Agency and the National Highway Traffic Safety Administration. http://www3.epa.gov/otaq/climate/regs-light-duty.htm

these two rules will reduce greenhouse gas emissions in the transportation sector by more than 7 billion tons, or over 18 percent in 2025 relative to the previous baseline.[9]

What is particularly exciting about these policies is that they have the potential to induce innovation. Just as the Clean Power Plan is providing consistent long-term signals for innovation in the electricity sector, the vehicle standards are providing consistent long-term signals for innovation in transportation. This means new technologies. It means advanced engines, new powertrain designs, and alternative fuels. It sets the stage for a clean energy future.

Further Policies for a Clean Energy Future

This stage for a clean energy future has also been set with a variety of other initiatives across the Administration. In meeting the targets of the Climate Action Plan, there is an "all-hands-on-deck" mentality across the Federal government.

In the past five years, the Department of Energy (DOE) has issued over $30 billion in loans and loan guarantees, covering more than 30 projects that include some of the world's most innovative and largest solar, wind, geothermal, biofuel, and nuclear facilities. Twenty supported projects are already operational, generating revenue, providing jobs, and producing enough clean energy to power more than 1 million American homes. For example, in 2011 DOE provided over $5 billion in loan guarantees for construction of the first five utility-scale PV projects over 100 MW. Since then, these projects spurred further development of another 17 projects with private financing.[10]

The Administration is continuing to look forward, anticipating and supporting the next set of technology developments. On August 24, 2015, President Obama announced that up to $1 billion dollars in DOE loan guarantees will be made available to support projects such as rooftop solar with storage and smart-grid technology. This is not restricted to solar technologies either; loan guarantees are also being made available to encourage advanced nuclear technologies.[11] In June the White House hosted a Clean Energy Investment Summit in which major foundations, institutional investors, and others made $4 billion in commitments for innovative solutions towards breakthrough technologies that reduce greenhouse gas emissions.[12]

In addition to new technologies, getting to our clean energy future also requires making use the technology we already have and know works. The Better Buildings Challenge, launched in 2011, aims to reduce the energy use of buildings around the nation—using existing energy efficiency

---

[9] Environmental Protection Agency. "EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles." http://www3.epa.gov/otaq/climate/documents/420f11031.pdf; CEA calculations based on the Energy Information Administration's Annual Energy Outlook 2015.

[10] U.S. Department of Energy, Loan Programs Office. 2014. "LPO Financial Performance." http://energy.gov/sites/prod/files/2014/11/f19/DOE-LPO-Financial%20Performance%20November%202014.pdf

[11] The White House. 2015. "President Obama Announces New Actions to Bring Renewable Energy and Energy Efficiency to Households across the Country." https://www.whitehouse.gov/the-press-office/2015/08/24/fact-sheet-president-obama-announces-new-actions-bring-renewable-energy

[12] https://www.whitehouse.gov/blog/2015/06/16/mobilizing-4-billion-private-sector-support-homegrown-clean-energy-innovation

technologies—by 20 percent over 10 years. Over 250 leaders representing 3.5 billion square feet, 650 manufacturing plants, and $5.5 billion in financing investments have stepped up to the challenge. The partners in the challenge are on track to meeting the energy savings goals, with a savings of 2 percent on average each year, amounting to $840 million since 2011. This work complements the over 20 energy conservation standard rulemakings in the past year, covering a wide range of appliances, heating systems, and cooling systems. The combined energy savings are projected to reduce consumers' electricity bills by the hundreds of billions of dollars, and further help meet the emissions reductions targets.[13]

The Federal government is working to be a role model in the efforts to reduce emissions. In 2009, President Obama directed agencies to reduce greenhouse gas emissions from building energy use and fuel consumption by 28 percent by 2020. As of 2014, agencies had already cut emissions by nearly 20 percent, and over 10 percent of Federal government electricity is now sourced from renewable energy.[14]

Coping with Climate Change

No matter how great our efforts, the globe will get warmer, and we will see a higher sea level, more intense heat waves, and greater risk of severe hurricanes. This is baked in the cake from what society has already done, most notably the fact that atmospheric concentrations of CO_2 are 398 parts-per-million[15] as compared to the pre-industrial level of approximately 280 parts-per-million.[16] And even as we start to reduce emissions, the concentration of greenhouse gases will continue to rise for some time. So a critical part of the strategy is better preparing ourselves to cope with climate change.

To that end, the second part of the Climate Action Plan aims to build resilience to climate change impacts, particularly in vulnerable communities. Across America, States, cities, and communities are taking steps to protect themselves by updating building codes, and planning for rapid recovery from damages that nonetheless occur. As part of the Climate Action Plan, the Administration is supporting these community-based preparedness and resilience efforts, establishing policies that promote preparedness, protecting critical infrastructure and public resources, supporting science and research for resiliency, and ensuring that Federal operations and facilities continue to protect and serve citizens in a changing climate.

In 2009, President Obama established an Interagency Climate Change Adaptation Task Force, and in May 2010 the Task Force hosted the first National Climate Adaptation Summit,

---

[13] U.S. Department of Energy. 2015. "Better Buildings Progress Report 2015." http://betterbuildingssolutioncenter.energy.gov/sites/default/files/news/attachments/DOE_BB_2015_Progress_Report_Solution_Center.pdf

[14] The White House. 2015. "Reducing Greenhouse Gas Emissions in the Federal Government and Across the Supply Chain." https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro

[15] World Meteorological Association. 2015. "Greenhouse Gas Concentrations Hit Yet Another Record." https://www.wmo.int/media/content/greenhouse-gas-concentrations-hit-yet-another-record

[16] Intergovernmental Panel on Climate Change. 2007. "IPCC Fourth Assessment Report." https://www.ipcc.ch/publications_and_data/ar4/wg1/en/tssts-2-1-1.html

convening stakeholders to identify challenges and opportunities for preparing the nation for change. In February 2013, agencies across the Administration released Climate Change Adaptation Plans for the first time, outlining strategies to protect their operations and programs from the effects of climate change.

The Interagency Task Force recommendations also emphasized the potential harm to communities that are likely to be disproportionately affected from climate change, especially those that already face economic- or health-related challenges. The Third U.S. National Climate Assessment highlighted that pre-existing challenges often mean that there is less capacity and fewer resources available to prepare and adapt, exacerbating the vulnerability of certain populations, including low-income, tribal, and some minority populations. Recognizing this, the Administration recently announced a series of new actions and investments to build resilience to climate change impacts. These actions channel over $25 million in public and private investments.[17]

These actions and programs are setting us on a path to further reduce the risks of climate change and protect our most vulnerable.

Leading on Climate on the International Stage

The United States cannot deal with climate change alone. We currently represent roughly 16 percent of global energy-related carbon emissions, second only to China. Business-as-usual projections indicate that an increasing share of emissions will come from the developing world as their economies expand and their energy needs grow.[18] Addressing the problem of excessive emissions will therefore require a broad global response.

Some have expressed a view that we should wait to act until we secure binding, matching actions by other countries around the world. The President took a different approach based on the premise that the best way to get other countries to step up and address these serious issues was for the United States to lead the way. And we have seen a vindication of this strategy, most notably with our joint announcement with China in which they committed to peak their emissions around 2030, if not before then.[19]

We are now heading into the Paris COP-21 talks in better shape than the world has ever been to make serious, global progress tackling climate change. The United States is coming to the table as a leader with not just commitments but also a concrete path forward to meet these commitments. And the entire premise of Paris is a departure from the rigid, top-down approach that failed in the past but is instead a bottom up approach as countries come to the table with their own commitments, known as Intended Nationally Determined Contributions or INDCs. These commitments form the foundation of the 2015 agreement. With U.S. leadership helping to

[17] The White House. 2015. “Actions to Build Resilience to Climate Change Impacts in Vulnerable Communities.” https://www.whitehouse.gov/administration/eop/ceq/Press_Releases/July_09_2015
[18] Council of Economic Advisers. 2015. “The Economic Report of the President.”
[19] The White House. 2014. “U.S.-China Joint Announcement on Climate Change.” https://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change

build momentum for real action, a total of 147 countries, covering 86 percent of global greenhouse gas emissions in 2010, submitted INDCs by the October 1 deadline. These commitments imply that the growth in global average emissions will slow dramatically over the next 15 years, and for many countries will fall over that time period.[20]

By bringing all of the large emitters to the table making commitments, we are for the first time laying the groundwork for meaningful global reductions in emissions, which is necessary for reducing the risk of climate change. A critical ingredient for longer-term meaningful global reduction to occur is innovation in clean technologies. The domestic policies under the Climate Action Plan position the United States as a center for such innovation.

The expertise and knowledge in clean energy technologies can also help the developing world. This is another area where U.S. leadership can make a difference. In November 2014, the President announced that the United States would contribute $3 billion to the Green Climate Fund. This fund supports work in developing countries to mitigate carbon pollution and strengthen resilience. The strong U.S. pledge helped to increase the number and ambition of contributions from other countries, so that our leadership helped propel initial capitalization of the fund to over $10 billion. And this is just a part of our joint commitment to reach $100 billion in funding per year by 2020 to support concrete mitigation actions in developing countries that are implemented in a transparent way[21].

The Role of the Business Community

The business community, and investors such as yourselves, have an important role to play in these changes. We in government do not have all of the answers. We can only tackle climate change by taking advantage of the distributed wisdom of millions of businesses and hundreds of millions of consumers. Setting a clear path forward for the goals we are trying to achieve in emissions reductions and the policy steps to help secure these goals are an important part of the incentive for businesses and consumers to exercise their creativity to reduce emissions.

Last month, executives from 81 companies came to the White House to sign the "American Business Act on Climate Pledge" to demonstrate their support for action on climate change and the successful conclusion of a climate change agreement in Paris. These are some of the largest companies in the country. Combined, they have operations in all 50 States, employ over 9 million people, represent more than $3 million in annual revenue, and have a combined market capitalization of over $5 trillion.

Each of the companies made ambitious, company-specific goals such as reducing emissions by as much as 50 percent, purchasing 100 percent renewable energy or pursuing zero net

[20] United Nations Framework Convention on Climate Change. 2015. "Synthesis Report on the Aggregate Effect of Intended Nationally Determined Contributions (INDCs). http://unfccc.int/files/focus/indc_portal/application/pdf/synthesis_report_-_brief_overview.pdf

[21] United Nations Framework Convention on Climate Change. 2011. "Financial, technology, and capacity-building support." http://cancun.unfccc.int/financial-technology-and-capacity-building-support/new-long-term-funding-arrangements/

deforestation in supply chains. Some of the companies are already meeting ambitious goals. Apple is already running all of its U.S. operations on 100 percent renewable energy and reduced carbon emissions from its corporate facilities, data centers, and retail stores by 48 percent since 2011. Others have set ambitious goals for the next five years. AT&T set a goal to reduce direct greenhouse gas emissions by 20 percent from 2008 levels. Coca-Cola pledges to reduce the carbon footprint of the "drink in your hand" by 25 percent by 2020. Dell commits to reducing greenhouse gases from facilities and logistics operations by 50 percent by 2020 relative to 2012 levels, and increase renewable energy purchases to 50 percent.[22]

Why are these companies making such commitments? It is not only the right thing to do, but it makes business sense. Improving the efficiency of operations reduces costs. Using renewable electricity may provide greater certainty of costs in the long run, sometimes provides tax benefits, often raises employee morale, and can attract consumers as well. Companies showing leadership in climate change are likely to be well-run, forward-looking companies that take the long vision.

Conclusion

I would like to conclude with another quote from Robert F. Kennedy: "All of us might wish at times that we lived in a more tranquil world, but we don't. And if our times are difficult and perplexing, so are they challenging and filled with opportunity."

I see great opportunities moving forward, both for the United States in moving to a clean energy future and for investors interested in sustainable investing in order to make this transition happen. With the leadership of President Obama and our recent actions in the United States, I also see great opportunity in the upcoming Paris meetings for reaching meaningful commitments to halt and then reverse the growth of greenhouse gas emissions. Thank you for your time.

[22] The White House. 2015. "White House Announces Commitments to the American Business Act on Climate Pledge." https://www.whitehouse.gov/the-press-office/2015/10/19/fact-sheet-white-house-announces-commitments-american-business-act