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STATE OF WEST VIRGINIA, *et al.*,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,

Respondent.

**On Petition for Review of a Final Rule of the
United States Environmental Protection Agency**

**AMICI CURIAE BRIEF OF SUSTAINABLE BUSINESS
ORGANIZATIONS IN SUPPORT OF RESPONDENT**

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to D.C. Circuit Rule 28(a)(1), *Amici Curiae* certify that:

(A) Parties and *Amici*

In addition to the parties and *amici* listed in Respondent’s Opening Brief, the *amici* listed below under “Interests of *Amici Curiae*” may have an interest in the outcome of this case.

(B) Rulings Under Review

References to the rulings at issue appear in Respondent’s Opening Brief.

(C) Related Cases

References to the related cases appear in Respondent’s Opening Brief.

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STATEMENT UNDER FED. R. APP. 29(c)

Amici Curiae state that no counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. Additionally, no person other than *amici curiae* or their counsel made a monetary contribution to its preparation or submission.

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GLOSSARY

ACP	American Climate Prospectus
CEIP	Clean Energy Incentive Program
CO ₂	Carbon Dioxide
The Plan	Clean Power Plan
EPA	Environmental Protection Agency
RCP	Representative Concentration Pathways
RGGI	Regional Greenhouse Gas Initiative

INTERESTS OF *AMICI CURIAE*

Amici Curiae Sustainable Business Organizations (“*Business Amici*”) represent the interests of hundreds of thousands of businesses concerned about the effects of climate change and convinced that American businesses can and will benefit from a strong government response that reduces harmful emissions of carbon dioxide (CO₂) while at the same time stimulating economic growth and creating jobs. *Business Amici*’s perspective on climate change and energy policy is shared with the electric companies and other intervenors supporting the Environmental Protection Agency (“EPA”) and differs sharply from the views expressed by the U.S. Chamber of Commerce and others opposed to reducing CO₂ emissions.

Business Amici’s views are informed by the work of leading scientists and economists based on peer-reviewed and published research. This research confirms EPA’s conclusion that the net benefits of the final rule entitled Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,661 (Oct. 23, 2015), known as the Clean Power Plan or the “Plan,” far outweigh the costs. The Plan will stimulate economic growth and job creation in clean and renewable energy, energy efficiency, and other energy sources and technologies. By contrast, the cost of unchecked climate change that

can be quantified economically dwarfs the costs of the Plan—even without considering the enormous unquantifiable costs of climate change.

Business *Amici* share a commitment to sustainability, which is classically defined as “meeting the needs of the present without comprising the ability of future generations to meet their own needs.”¹ Business *Amici* include the following organizations:²

- American Sustainable Business Council
- U.S. Black Chambers, Inc.
- South Carolina Small Business Chamber of Commerce
- Green America
- CABA (Climate Action Business Association, New England)
- Pioneer Valley Local First
- Local First Ithaca
- Kentucky Sustainable Business Council
- West Virginia Sustainable Business Council

¹ UNITED NATIONS, Report of the World Commission on Environment and Development, G.A. Res. 42/187, U.N. Doc. A/RES/42/187 (Dec. 11, 1987), *available at* undocs.org/A/RES/42/187.

² Information about all of these organizations can be found at <http://asbcouncil.org/membership/member-organizations>, except for the U.S. Black Chamber of Commerce, which can be found at <http://www.usblackchamber.org/usbc-about-us>.

- Ohio Sustainable Business Council
- Idaho Clean Energy Association
- Integrative Healthcare Policy Consortium
- Sustainable Furnishings Council
- National Small Business Network
- New York State Sustainable Business Council
- P3Utah
- Business and Labor Coalition of New York
- Small Business Minnesota
- Metro Independent Business Council (Minneapolis)
- Lowcountry Local First (South Carolina)
- Local First Arizona
- Sustainable Business Network of Massachusetts
- Sustainable Business Network of Greater Philadelphia
- Hampton Roads Hispanic Chamber of Commerce
- Heartland Black Chamber of Commerce (Kansas)

INTRODUCTION

Although we are frequently told that the costs of preventing climate change—the cost of moving away from fossil fuels—are prohibitive and will destroy our prosperity, a trove of recent work suggests just the opposite.³

Business *Amici* support the Clean Power Plan as a sensible, cost-justified initial response to climate change. The EPA in its Regulatory Impact Analysis⁴ properly considered the costs and benefits of the rule, and concluded that the benefits far outweigh the costs. If anything, the EPA significantly underestimated the economic and climate benefits.

ARGUMENT

A. The Clean Power Plan Will Generate Significant Economic Benefits

The assertion of Petitioners' *amici* that the Plan will have a substantial negative effect on employment, consumer electric rates, and local economies

³ GEOFFREY HEAL, *Pricing Climate Risk, Opening Commentary*, in T. HAUSER, ET AL., *ECONOMIC RISKS OF CLIMATE CHANGE: AN AMERICAN PROSPECTUS* 121 (Columbia Univ. Press 2015).

⁴ U.S. ENVTL. PROT. AGENCY, *REGULATORY IMPACT ANALYSIS FOR THE CLEAN POWER PLAN FINAL RULE* (updated October 23, 2015), *available at* <https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf>.

amounting to “economic disaster” is simply wrong.⁵ It is unsupported by the record and inconsistent with the real-world experience of states and sustainable businesses.

In the real world, states can and will stimulate economic growth while reducing CO₂ emissions. The EPA’s Regulatory Impact Analysis concluded that the effect on jobs in the electricity, coal, and natural gas sectors would be more than offset by job gains in other sectors.⁶ It must be noted that because of the inability to predict how states will design their compliance plans, the EPA used a very conservative estimate of job gains from the Plan. *Id.* at 6-31.

A trove of research and actual experience shows that, with the motivating force of the Plan, state implementation can generate economic benefits far exceeding the EPA’s expectations for jobs, consumers, local economies, and the economy as a whole. The key is that the states are expected to devise and

⁵ Brief of 166 State and Local Business Associations as *Amici Curiae* in Support of Petitioners (dkt. # 1600447), at 24.

⁶ REGULATORY IMPACT ANALYSIS, note 4, at 6-35. The total number of coal jobs during the 2000 to 2014 time period was around 70,000, with a peak in 2011 at 87,000. *Id.* at 6-13. There were close to 200,000 employees in the oil and gas extraction sector in 2014. *Id.* at 6-13. In contrast, broadly defined “green jobs” employed 2.5 million people in 2011, renewable energy provided about 140,000 jobs in 2010, and energy and resource efficiency-related jobs amounted to over 400,000 in 2010. *Id.* at 6-18 & Table 6-3.

implement compliance plans that maximize opportunities for economic growth while reducing emissions.⁷

1. States Control Decisions and Execution Under the Clean Power Plan

The Plan is neither a “centralized, command-and-control model,” nor a “centrally-designed, blunderbuss approach” that “does not (and cannot) account for the unique circumstances that different communities throughout the nation confront.”⁸ The Plan sets goals and a broad framework of options for states to consider and adopt, preserving substantial flexibility for states to design plans suited to their unique geographic, energy resource, and other circumstances, including market-based mechanisms that can generate significant revenue while reducing CO₂ emissions. The Plan is the opposite of centralization. It employs a cooperative federalism approach that preserves the states’ traditional control over energy policy. It allows states to achieve the national goals of reducing CO₂ emissions by directing and implementing their own plans in ways that stimulate economic growth and create jobs for their citizens.

⁷ E.g., John C. Dernbach, Robert B. McKinstry, Jr. & Thomas D. Peterson, *Making the States Full Partners in a National Climate Change Effort: A Necessary Element for Sustainable Economic Development*, 40 ELR 10597 (March 12, 2010), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1569641.

⁸ Brief of 166 State and Local Business Associations as *Amici Curiae* in Support of Petitioners (dkt. # 1600447), at 20, 22.

2. Renewable Energy Provides Substantial Opportunities for Job Creation

Renewable energy provides a valuable opportunity for states looking to stimulate economic growth while reducing CO₂ emissions. The job-creation rate for investments in renewable energy is twice that for coal, oil, or natural gas: one dollar spent on renewables creates twice as many jobs as the same investment on fossil fuels.⁹ Employment in the solar energy industry alone grew 123% from 2010 to 2015 and resulted in over 115,000 new living-wage jobs.¹⁰ Unlike fossil fuels that have to be transported to the state, renewable energy jobs tend to be local and often rural.¹¹ Another important benefit of renewable energy is that, because the fuel is free, the price of electricity does not spike when the air temperature is very

⁹ Robert Pollin, James Heintz & Heidi Garrett-Peltier, *The Economic Benefits of Investing in Clean Energy* (June 2009), *available at* http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economic_s/economic_benefits/economic_benefits.PDF.

¹⁰ National Solar Jobs Census (2015) at 5, *available at* <http://www.thesolarfoundation.org/wp-content/uploads/2016/01/TSF-2015-National-Solar-Jobs-Census.pdf>.

¹¹ Union of Concerned Scientists, *Clean Power Green Jobs Fact Sheet* at 1 (March 2009), *available at* <http://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean-energy/Clean-Power-Green-Jobs-25-RES.pdf>.

hot or very cold.¹² This predictability provides businesses an important advantage in making future capital and related operational decisions.

3. The Clean Power Plan Encourages Market-Based Mechanisms

According to a July 2014 report from Analysis Group, “the impacts on electricity rates from well-designed CO₂-pollution control programs will be modest in the near term, and can be accompanied by long-term benefits in the form of lower electricity bills and positive economic value to state and regional economies.”¹³ The report pointed to the availability of market-based mechanisms, such as California’s cap-and-trade program or the nine-state Regional Greenhouse Gas Initiative (“RGGI”),¹⁴ that “provide opportunities for states to capture the

¹² Department of Energy, Office of Energy Efficiency & Renewable Energy, *Spurring Local Economic Development With Clean Energy Investments: Lessons from the Field* (Nov. 2013), *available at* http://www1.eere.energy.gov/wip/solutioncenter/pdfs/clean_energy_investment_cases.pdf.

¹³ PAUL J. HIBBARD, ANDREA M. OKIE & SUSAN F. TIERNEY, EPA’S CLEAN POWER PLAN: STATES’ TOOLS FOR REDUCING COSTS AND INCREASING BENEFITS TO CONSUMERS at 1 (July 2014), *available at* http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_epa_clean_power_plan_report.pdf.

¹⁴ Founded in 2007, RGGI “is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont to cap and reduce CO₂ emissions from the power sector.” The RGGI states have agreed to a regional cap on CO₂ emissions. RGGI sells emissions allowances equal to the cap through auctions and the states invest the proceeds in energy efficiency, renewable energy, and other consumer

economic value of CO₂ emissions allowances, and direct those revenues for consumer and public benefit.” *Id.* at 2-3.¹⁵

RGGI has been an unqualified economic success. “RGGI produced in total \$1.6 billion in net present economic value (NPV) for the ten-state region” and “led to over 16,000 additional jobs” in its first three years (2009 to 2011). *Id.* at 20, 21. RGGI continued to generate positive economic results in the following three years, with an additional \$1.3 billion in net present economic value and 14,200 additional

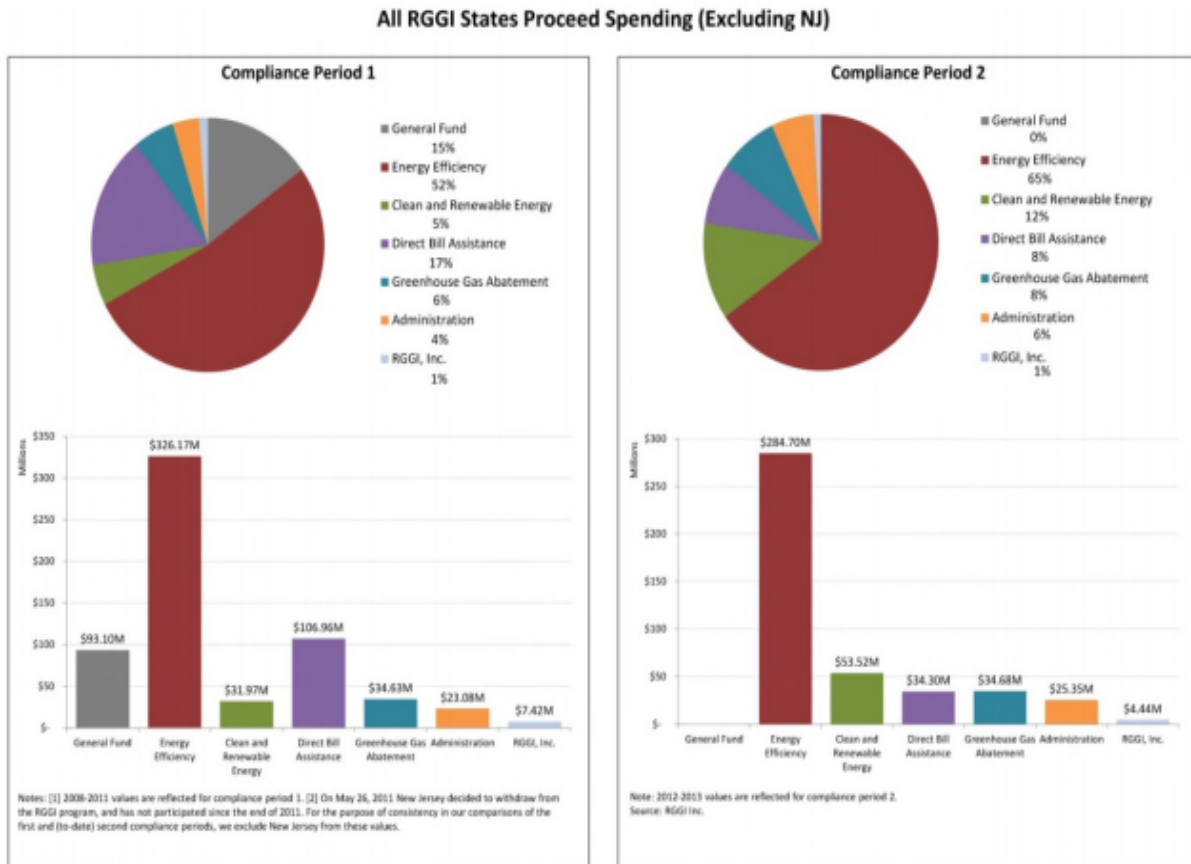
benefit programs. REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/> (last visited March 29, 2016). New Jersey was a member of RGGI but dropped out in 2011.

¹⁵ In July 2015, Analysis Group released a report on the economic impacts of RGGI program implementation, primarily covering the second three-year period of the program (2012-2014). PAUL J. HIBBARD, ANDREA M. OKIE, SUSAN F. TIERNEY & PAVEL G. DARLING, THE ECONOMIC IMPACTS OF THE REGIONAL GREENHOUSE GAS INITIATIVE ON NINE NORTHEAST AND MID-ATLANTIC STATES (July 24, 2015), *available at* http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_july_2015.pdf.

The July 2015 report supplemented a previous study completed by Analysis Group in November 2011 on RGGI’s first three-year period (2009-2011). *See* PAUL J. HIBBARD, ANDREA M. OKIE, SUSAN F. TIERNEY & PAVEL G. DARLING, THE ECONOMIC IMPACTS OF THE REGIONAL GREENHOUSE GAS INITIATIVE ON TEN NORTHEAST AND MID-ATLANTIC STATES (Nov. 15, 2011), *available at* http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/economic_impact_rggi_report.pdf.

jobs.¹⁶ RGGI states used auction revenues of over \$1 billion for a variety of purposes, with the greatest share dedicated to energy efficiency, as shown in Figure 2. *Id.*

Figure 2



The report “found that the level of economic benefit (net economic value added, and jobs) per dollar of auction revenue spent was highest in those states in regions with the greatest level of reinvestment of auction proceeds on energy efficiency.”

¹⁶ PAUL J. HIBBARD, ANDREA M. OKIE , SUSAN F. TIERNEY & PAUL G. DARLING, THE ECONOMIC IMPACT OF THE REGIONAL GREENHOUSE GAS INITIATIVE ON NINE NORTHEAST AND MID-ATLANTIC STATES at 5, 11 (July 24, 2015).

Id. at 24. Contrary to the suggestion that CO₂ reduction is inconsistent with economic growth, prospective modeling conducted by RGGI during its last program reevaluation showed that, with its system of reinvesting revenues from allowance auctions, a lower (more stringent) cap on emissions would produce higher economic growth in terms of gross state product than would a higher cap.¹⁷

4. Energy Efficiency Is a Key to Savings

The EPA originally proposed energy efficiency as one of the building blocks under the Plan. The final rule features energy efficiency, not as a building block, but as a key compliance strategy for states.¹⁸

According to a November 2014 economic analysis, “[e]nergy efficiency is the most cost effective means of meeting energy demand and reducing carbon

¹⁷ The model estimates that gross state product would increase by \$0.977 billion with a 106-million-ton cap, \$4.976 billion with a 97-million-ton cap, and \$8.7 billion with the 91-million-ton cap that was ultimately adopted. *Compare* REMI ECONOMIC ANALYSIS OF RGGI IPM POTENTIAL SCENARIOS at 25 (Nov. 28, 2012), *available at* http://www.rggi.org/docs/ProgramReview/November28/12_11_28_REMI_Presentation.pdf, (showing an increase in gross state product of \$977 million with a 106-million-ton cap, and \$4.976 billion with a 97-million-ton cap), *with* NESCAUM, REMI ECONOMIC IMPACT ANALYSIS ASSUMPTIONS AND RESULTS: 91 CAP BANK MODEL RULE CASE at 22 (June 3, 2013), *available at* http://www.rggi.org/docs/ProgramReview/REMI%2091%20Cap%20Bank%20MR_2013_06_03.pdf, (showing an increase in gross state product of \$8.7 billion with a 3% discount rate at the 91-million-ton cap that was adopted).

¹⁸ *See* 80 Fed. Reg. at 64,673-74, 64,756-57, 64,776-79.

emissions—because investments in energy efficiency more than pay back in energy bill savings.”¹⁹ The paper estimated the economic impacts of achieving a 20% electricity savings through efficiency gains by 2030 as follows. “[N]et savings on electricity bills (i.e., the savings after program costs and the annual payments for investments have been paid) exceeds \$46 billion (rounded) in 2030 which is about 11 percent of the nation’s reference case electricity bill for that year.” *Id.* at 18. “[O]verall employment benefits begin with about 49,504 jobs in 2014, but grow steadily as both investments and electricity savings increase over time. By 2030, the total job gain reaches 818,827 jobs, and 0.521 percent of the jobs otherwise available in that year.” *Id.*

A July 2015 working paper from the National Association of State Energy Officials, which takes no official position on the Plan, recognized energy efficiency as “not only often being the least-cost Plan compliance approach, but also as offering multiple benefits that support other state objectives. These include reducing other conventional pollutant emissions, enhancing energy reliability (by reducing grid and fuel supply stress), avoiding or deferring costly supply-side energy investments and often supporting in-state and other local economic

¹⁹ JOHN A. LAITNER & MATTHEW T. MCDONNELL, ENERGY EFFICIENCY AS A POLLUTION CONTROL TECHNOLOGY AND A NET JOB CREATOR UNDER SECTION 111(D) CARBON POLLUTION STANDARDS FOR EXISTING POWER PLANTS at i (Nov. 28, 2014), *available at* https://www.edf.org/sites/default/files/edf_laitner-mcdonnell-energy-efficiency-as-a-pollution-control-technology.pdf.

opportunities. Thus, energy efficiency strategies can serve as ‘no regrets’ approaches that deliver benefits irrespective of the fate of the Plan or direction of future climate related policy.”²⁰

5. The Clean Power Plan Will Have a Positive Economic Effect

Other researchers have concluded that the Plan will have a net positive effect on jobs and the economy, as found by the EPA. One paper suggests that the Plan as originally proposed would result in “a net gain of 74,000 jobs in 2020,” and “these annual employment gains will increase to 196,000 to 273,000 jobs between 2025 and 2040.”²¹

A study for Minnesota based on stakeholder input and conducted by the Center for Climate Strategies demonstrates that the economic benefits could be greater than predicted by the EPA when states implement the Plan with the benefit

²⁰ NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS, ENERGY EFFICIENCY STRATEGIES FOR CLEAN POWER PLAN COMPLIANCE: APPROACHES AND SELECTED CASE STUDIES (working draft) (July 2015), *available at* http://111d.naseo.org/Data/Sites/5/naseo-ee-for-cpp-2015-working-draft_7-30-15.pdf.

²¹ D. MEADE & J. PRICE, ASSESSMENT OF THE ECONOMY-WIDE EMPLOYMENT IMPACTS OF EPA’S PROPOSED CLEAN POWER PLAN at ES-1 (April 14, 2015), *available at* http://www.inforum.umd.edu/papers/otherstudies/2015/iec_inforum_report_041415.pdf.

of real-world input from stakeholders.²² The State of Minnesota retained the Center for Climate Strategies to conduct an analysis of 20 policy recommendations designed to achieve the combined goals of economic development and reductions of greenhouse gas emissions.²³ These 20 policies include expanded renewables, increased energy efficiency, retirement of the two largest coal-fired plants, addition of natural gas and biomass sources, and other measures related to transportation, land use, buildings, and agriculture. While the 20 policies were not designed to bring Minnesota into compliance with the Plan, Minnesota asked the Center for Climate Strategies to evaluate whether the policies would have that effect by reducing CO₂ emissions. The Center concluded that they would do so, under either a mass-based or rate-based approach.

At the same time that the 20 policies would enable Minnesota to ensure Plan compliance by reducing CO₂ emissions, the Center for Climate Strategies also concluded that they will stimulate economic growth and job creation.

Net gains for Minnesota from CSEO policies include an average of 24,630 newly created jobs per year, or a total of 369,440 additional

²² The Center for Climate Strategies is “the nation’s premiere catalyst for state climate action planning and analysis” that has worked on climate change planning with over 40 U.S. states and territories as well as many foreign states since 2004. CENTER FOR CLIMATE CHANGE, *Mission & History*, available at <http://www.climatestrategies.us/about/mission-and-history>.

²³ CENTER FOR CLIMATE STRATEGIES, MINNESOTA CLIMATE STRATEGIES AND ECONOMIC OPPORTUNITIES, at I-2 – I-4 (March 7, 2016), available at http://www.climatestrategies.us/policy_tracker/policy/index/24.

years of employment through 2030. Gross State Product (GSP) grows an additional \$35.7 billion as a result of the CSEO policies over the 2015-2030 period – an average of \$2.38 billion in additional economic activity per year (a 0.5 percent annual increase). Personal income expands by an annual average of \$2.3 billion, or 0.6% per year.

Id. at I-1.

These findings are consistent with findings for climate actions plans for other states, such as Florida,²⁴ Pennsylvania,²⁵ and Michigan.²⁶

The Plan gives all states the opportunity to reduce CO₂ emissions while simultaneously stimulating economic and job growth through well-designed compliance plans. States may wish to follow the lead of the RGGI states and join with their neighbors to form regional market-based mechanisms, such as a cap-and-trade system or other carbon pricing mechanism. Or they may wish to follow a mix and match strategy, like Minnesota. They should definitely consider taking advantage of the economic benefits of increasing energy efficiency; that

²⁴ MACROECONOMIC ANALYSIS, FLORIDA ENERGY AND CLIMATE CHANGE ACTION PLAN: REPORT SUMMARY (May 17, 2009), *available at* www.climatestrategies.us/library/library/download/420.

²⁵ Adam Rose, Dan Wei & Noah Dormady, *Regional Macroeconomic Assessment of the Pennsylvania Climate Action Plan*, Regional Science Policy & Practice, Volume 3, Number 4 (November 2011) (last modified March 18, 2013), *available at* <http://www.climatestrategies.us/library/library/view/1027>.

²⁶ STEVEN MILLER, DAN WEI & ADAM ROSE, THE MACROECONOMIC IMPACT OF THE MICHIGAN CLIMATE ACTION COUNCIL CLIMATE ACTION PLAN ON THE STATE'S ECONOMY (Jan. 4, 2010) (last modified Aug. 6, 2015), *available at* <http://www.climatestrategies.us/library/library/view/1171>.

investment will pay for itself. How they do it is up to the states. The Plan gives the states the flexibility and the tools to achieve emissions reductions combined with economic growth while taking into consideration their own individualized circumstances, including the needs of low income²⁷ and rural communities.²⁸ The Plan should result not only in substantial reductions of greenhouse gas emissions, but also in net economic benefits, as states design and adopt strategies that stimulate growth and jobs in energy efficiency, renewable energy, and other sources, technologies, and programs that do not contribute to climate change.

B. The Climate Benefits Are Even Greater Than the EPA Determined

The EPA in its Regulatory Impact Analysis carefully documented the costs and benefits of the Plan, consisting of “Climate Benefits,” “Air Quality Health Co-benefits,” and “Compliance Costs.”²⁹ As can be seen in Tables 8-1 and 8-2 from

²⁷ The Plan established the Clean Energy Incentive Program (“CEIP”) to provide additional incentives for early investments in zero-emitting wind or solar power generation, and energy efficiency measures in low-income communities. 80 Fed. Reg. at 64,670, 64,828-32. CEIP is optional for states.

²⁸ See, e.g., Rural Climate Policy Priorities (Dec. 2015), available at <http://www.ruralclimatenetwork.org/policy-priorities>.

²⁹ REGULATORY IMPACT ANALYSIS, *supra* note 4, at, at 8-1 to 8-2 and Tables 8-1 and 8-2, available at <https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf>. See also 80 Fed. Reg. at 64,679-81 & Tables 1 and 2.

the Regulatory Impact Analysis, the Climate Benefits substantially outweigh the Compliance Costs, without including the Air Quality Health Co-benefits.³⁰

Business *Amici* believe that the Climate Benefits are substantially understated at the 3% discount rate used by the EPA in its Regulatory Impact Analysis.³¹ “The consensus of leading economists is that a declining discount rate schedule should be used, consistent with the approach of other countries, like the United Kingdom. Adopting such a schedule would increase the [social cost of

³⁰ Coincidentally, the Compliance Costs are similar to or less than the costs of complying with other EPA rules under the Clean Air Act for power plants. *See* Exhibit 1 to Respondent EPA’s Opposition to Motions to Stay Final Rule (dkt. # 1586661), Declaration of Janet G. McCabe, at 31-32, ¶ 43.

³¹ The Climate Benefits in the EPA’s Regulatory Impact Analysis are based on the social cost of carbon. REGULATORY IMPACT ANALYSIS, *supra* note 4, at 4-3 to 4-11. As the EPA has explained elsewhere, the social cost of carbon “is meant to be a comprehensive estimate of climate change damages and includes, among other things, changes in net agricultural productivity, human health, property damages from increased flood risk and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning.” EPA Fact Sheet: Social Cost of Carbon (Dec. 2015), *available at* <https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf>. “The models used to develop [social cost of carbon] estimates do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature because of a lack of precise information on the nature of damages and because the science incorporated into these models naturally lags behind the most recent research.” *Id.* (emphasis added).

carbon] substantially from the administration’s central estimate, suggesting that even the high end of the range presented by the administration is likely too low.”³²

The most recent research on just the economic effects of climate change demonstrates that the EPA’s assessment of the Climate Benefits from the Plan is conservative. The enormous economic risks of climate change were recently highlighted in privately funded research through the Risky Business Project.³³ This research includes a 2015 book, *The Economic Risks of Climate Change: An American Prospectus* (“ACP”).³⁴ The economic risks are profound and depend to a

³² Comment of Environmental Defense Fund, Institute for Policy Integrity at New York University School of Law, Natural Resources Defense Council, and Union of Concerned Scientists on Docket ID No. EPA-HQ-OAR-2013-0602, Clean Power Plan (Dec. 1, 2014), at 14, *available at* <https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-23545>.

³³ “In October 2013, NYC Mayor Michael Bloomberg, former U.S. Secretary of the Treasury Hank Paulson, and business leader and philanthropist Tom Steyer, founded a new initiative to assess and publicize the economic risks to the U.S. associated with climate change. The project grew out of concerns by the Co-Chairs that the U.S. was not developing sound risk assessments to respond to the impacts of a changing climate. In their development of this initiative, the three founders recruited additional members to forge the Project’s Risk Committee, a group of dedicated individuals concerned about the economic future of America under the threat of global climate change.” RISKY BUSINESS, *About Us*, <http://riskybusiness.org/about/> (last visited Mar. 29, 2016).

³⁴ T. HAUSER, ET AL., *ECONOMIC RISKS OF CLIMATE CHANGE: AN AMERICAN PROSPECTUS* (Columbia Univ. Press 2015).

large degree on the extent to which greenhouse gas emissions continue at the current trajectory.

1. The Rise in Temperature This Century Depends in Large Part on the Emissions Trajectory

The planet has already warmed (1.4° Fahrenheit since the late 19th century, with most of that increase having occurred over the past 30 years) as a result of human activities. *Id.* at 13. The main cause of rising temperatures is greenhouse gas emissions, and the warming will continue throughout this century and beyond. *Id.* The rate and extent of future warming is uncertain because of a number of uncertainties and variables, including the rate and extent of future greenhouse gas emissions and the possibility of tipping points. *Id.* at 22. Nevertheless, scientists are confident in projections of future warming expressed probabilistically based on four accepted scenarios of future greenhouse gas emissions, known as Representative Concentration Pathways (“RCPs”), which “represent a range of plausible emissions trajectories. *Id.* at xii.

The RCPs are denominated as 8.5, 6.0, 4.5, 2.6. “RCP 8.5 is the closest to a business-as-usual trajectory, with continued fossil-fuel-intensive growth; RCP 4.5 represents a moderate emission mitigation trajectory, while RCP 2.6 represents strong emissions control.” *Id.*

The projected rise in global and U.S. temperature this century under all RCPs is pronounced.

By midcentury, global average temperature will *likely* (67 percent probability) be between 2.2° F and 3.7° F warmer under the continued high global emission pathway (RCP 8.5). . . . By the end of the century . . . the *very likely* (90 percent probability) warming is 4.7° F to 8.8° F for RCP 8.5 (figure 4.1).

Figure 4.1 shows the projected rise in air temperature this century.³⁵

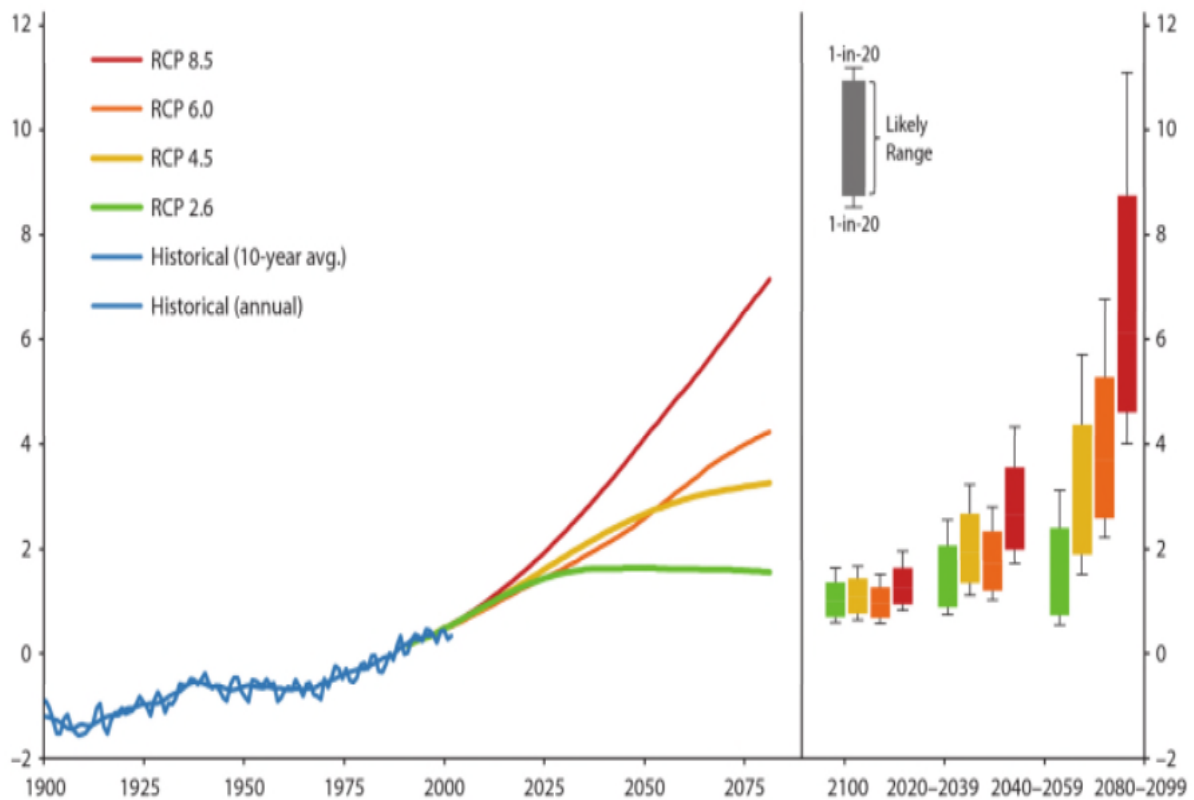


FIGURE 4.1. Global Average Temperature Projections

Degrees Fahrenheit relative to 1981–2010 averages, historical median projections (left side) and ranges (right side)

³⁵ Figures 4.1 and 4.3 are taken from the *ACP*.

Under RCP 8.5, the average summer temperature will rise substantially this century. Here are the median likely and 1-in-20 odds scenarios.

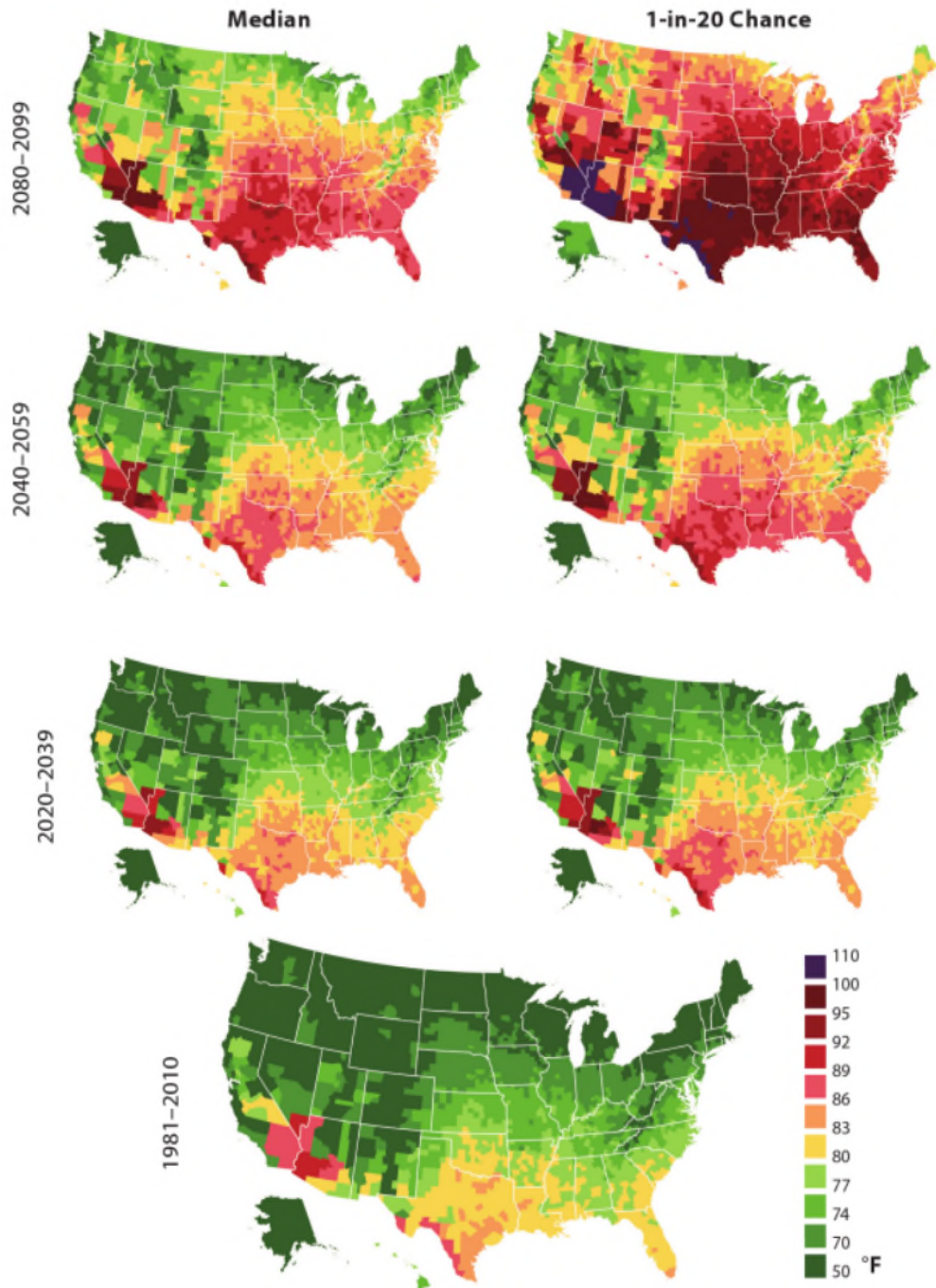


FIGURE 4.3. Change in Average Summer Temperatures

Daily average summer (June-July-August) temperature (degrees Fahrenheit) under RCP 8.5

2. The Physical Effects Beyond Temperature Rise Will Likewise Be Severe

Rising temperatures caused by greenhouse gas emissions will lead to other physical effects, including effects on humidity, precipitation, drought, sea level change, and extreme weather events. These other physical risks of climate change are addressed elsewhere, including in the EPA's endangerment findings under section 202(a) of the Clean Air Act,³⁶ and need not be repeated here except to note that if we continue on the business as usual scenario they will be pronounced and highly disruptive to economic and other human activity. By 2100, regions of the country will be too hot for people to live in during summer months, large portions of coastland where millions of people now live will be lost forever, and agriculture and food production will be altered in ways that we cannot now predict.³⁷ These are examples of just some of the physical effects expected by 2100 if we continue on the current course of greenhouse gas emissions.

3. The Economic Risk from Climate Change is Enormous

The *ACP* focuses on quantitative analysis of just six climate-change effects that could be reliably estimated. Of those, the risk of increased mortality poses the

³⁶ EPA, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, EPA.GOV <https://www3.epa.gov/climatechange/endangerment/> (last updated Feb. 23, 2016).

³⁷ T. Hauser, *supra* note 32, at xi.

greatest economic threat from climate change. *Id.* at xiii. The second greatest economic risk comes from the reduction in the number of hours that people work, particularly for those who engage in physically intensive work, and, especially outdoor workers in high-risk sectors such as agriculture, construction, utilities, and manufacturing. *Id.*

The other risks studied were measurable economic effects relating to energy demand, coastal communities, agriculture, and crime.³⁸ The sum of just these six metrics is enormous in economic terms.

In the median RCP 8.5 case, the costs of these six impacts would total 1.4 to 2.9 percent of the national GDP; there is a 1-in-20 chance that they would exceed 3.5 to 8.8 percent of the GDP. . . . For a sense of scale, other researchers estimate that, on average, civil wars and currency crises in other countries cause their GDPs to fall by roughly 3 and 4 percent, respectively.

Id. at xii.

Importantly, the *ACP* is a projection of *risk*. It does not attempt to predict the actual *costs* that the U.S. will experience, although it suggests that the costs will be

³⁸ The *ACP* emphasizes that the six impacts that could be studied based on existing data present a far from complete picture of the risk, as there are many impacts not addressed, such as the impacts on: fruits, nuts, vegetables, livestock, water supplies, inland flooding, weeds, pests, wildfires, tourism, and ocean acidification, as well as international trade, migration, and conflict. *Id.* at XIV. There is also the unaddressed risk of possible tipping points that may amplify warming, devastate ecosystems, or accelerate sea-level rise. *Id.*

large. *Id.* at xi-ii. One of the authors of the *ACP* published research suggesting that if emissions continue at the business as usual rate climate change could reduce U.S. gross domestic product (GDP) 36% by the end of the century.³⁹

The economic risk of climate change will affect all businesses and people in a variety of ways, depending on the amount of future emissions, time, and region. All businesses will be adversely affected as their costs for insurance and health care rise. Some businesses are more directly affected by changes in climate and will be affected sooner than others. Coastal communities will be hit early and hard, as sea-level rises and inundation drive property damages up with calamitous results for the many businesses that formerly thrived in ocean communities. Under the business as usual emissions trajectory, for example, “mean sea level at Charleston [SC] will likely rise 0.9 to 1.4 feet by 2050 and 2.1 to 3.8 feet by 2100,”⁴⁰ putting at risk \$2.9 billion in property, 5,438 homes, 10,233 people, 65 road miles, 6 medical facilities, 5 schools, 2 wastewater cites, and 7 hazardous waste sites, not to

³⁹ Marshall Burke, Solomon M. Hsiang & Edward Miguel, *Global Non-Linear Effect of Temperature On Economic Production*, 527 NATURE 235 (Oct. 21, 2015).

⁴⁰ COME HEAT AND HIGH WATER: CLIMATE RISK IN THE SOUTHEASTERN U.S. AND TEXAS (July 2015), at 4, *available at* <http://riskybusiness.org/site/assets/uploads/2015/09/Climate-Risk-in-Southeast-and-Texas.pdf>.

mention the incalculable cost to its vibrant tourism industry.⁴¹ Insurance companies are already refusing to write new policies in some of the coastal areas already facing this risk. This is, of course, just one example of countless irreparable losses to be expected from unchecked climate change. The economic risks demonstrate that the 3% discount rate used by the EPA is conservative and for that reason the Climate Benefits in the Regulatory Impact Analysis are underestimated.

C. The Overall Benefits of the Clean Power Plan Are Significant and Justify the Costs

Of all the baseless criticisms levelled at the Clean Power Plan, none is more wrong than the assertion that it will result in “Little to No Benefit.”⁴²

Climate change will impose extraordinary costs on people and businesses in the U.S. throughout the remainder of this century and beyond under all emissions trajectories; but the impacts under the business as usual scenario are particularly frightening. *See supra* at 20-22 and Figures 4.1 and 4.3. They are also particularly realistic, because they are precisely what scientists expect will happen if greenhouse gas emissions are not reduced. It is critically important that the U.S.

⁴¹ CLIMATE CENTRAL, SEA LEVEL AND COASTAL FLOOD EXPOSURE (Jan. 6, 2016), *available at* http://sealevel.climatecentral.org/uploads/fact-sheets/Surging-Seas-Fact-Sheet_SC_Charleston_SC702-SLR.pdf.

⁴² Brief of 166 State and Local Business Associations as *Amici Curiae* in Support of Petitioners (dkt.# 1600447), at 20.

take the steps to begin a sustained effort to get climate change under control by reducing greenhouse gas emissions.

The Plan is a “significant step forward in reducing greenhouse gas (GHG) emissions in the U.S.” by reducing emissions of CO₂, the most prevalent of the group of air-pollutant greenhouse gases that the EPA has determined endangers public health and welfare through its contribution to climate change.⁴³ As by far the largest domestic stationary source of emissions of CO₂, fossil-fuel-fired power plants are a logical place to start the effort to prevent harm from climate change by reducing emissions. *Id.*

The Plan’s emissions reductions target—32% below 2005 levels by 2030—is significant in and of itself, but these reductions will only be a first step and will be insufficient to prevent significant harm from climate change. That does not mean that a significant first step is not cost justified. As Justice Stevens writing for the Court noted in *Massachusetts v. EPA*, “[a]gencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop [citation omitted] but instead whittle away over time, refining their approach as circumstances change and as they develop a more nuanced understanding of how best to proceed

⁴³ 80 Fed. Reg. at 64,663.

[citation omitted].”⁴⁴ If the cost of action could be justified only if it could be assured that the problem sought to be remedied could be fixed by that action, without more, then no one would ever do anything that took multiple coordinated steps, like developing new technologies. That’s obviously wrong.

To be sure, if the first step that an agency proposed appeared truly hopeless, then maybe it wouldn’t be cost-justified. That is not the case here. The problem is big, but not beyond the power of government, free markets, and the ingenuity of the American people. That is one of the Plan’s strengths: it seeks to harness the power of the states to reduce emissions while driving economic growth and jobs, with free-market solutions as an available tool. The Plan also incentivizes the private sector to devise new energy sources and technologies. The Plan is an eminently reasonable and economically feasible response to the undeniable problem of human-caused climate change.

Because climate change is a global problem, it can be addressed only through a global solution. As discussed by other *amici*, President Obama’s announcement of the Plan in August 2015 was followed by climate-reduction

⁴⁴ *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497, 524 (2007) (citing *Williamson v. Lee Optical of Okla., Inc.*, 348 U.S. 483, 489 (1955); *SEC v. Chenery Corp.*, 332 U.S. 194, 202 (1947)).

pledges from China and India and led to the success of the 2015 United Nations Climate Accord in Paris.⁴⁵

The final canard to address is the suggestion that the EPA improperly relied on Air Quality Health Co-benefits in its cost assessment conclusion for the Plan.⁴⁶ Those health co-benefits are truly substantial because the reduction in CO₂ emissions will be accompanied by reduction in hundreds of thousands of tons of harmful particle pollution, sulfur dioxide, and nitrogen oxides. This will mean a lot to the many Americans who suffer from ailments caused or exacerbated by these pollutants—not to mention all the parents who lie awake at night listening to their children cough from dirty air. It will also result in huge economic savings.⁴⁷

The EPA had both a right and a duty to point out the health co-benefits; it was not improper in any way for the EPA to include them in the Regulatory Impact Analysis. From a business perspective, the effect on health has obvious

⁴⁵ E. Barry & C. Davenport, *India Announces Plan to Lower Rate of Greenhouse Gas Emissions*, N.Y. Times (Oct. 2, 2015), at A6 (“The Paris Agreement, the first accord to commit every country to combat climate change, had as a cornerstone Mr. Obama’s assurance that the United States would enact strong, legally sound policies to significantly cut carbon emissions.”) *available at* <http://www.nytimes.com/2015/10/02/world/asia/india-announces-plan-to-lower-rate-of-greenhouse-gas-emissions.html>.

⁴⁶ Brief of 166 State and Local Business Associations as *Amici Curiae* in Support of Petitioners (dkt.# 1600447), at 25.

⁴⁷ REGULATORY IMPACT ANALYSIS *supra* note 4, at 4-11 to 4-36.

implications for labor productivity and reduction of health care costs and should be taken into account. These co-benefits provide significant additional cost justification for the Plan, but the additional justification is unnecessary, as the Climate Benefits alone outweigh the Compliance Costs, as shown in the Regulatory Impact Analysis.

CONCLUSION

Business *Amici* believe that U.S. policy should be directed to reducing greenhouse gas emissions as soon as possible so that the economic and other risks of climate change are avoided to the greatest extent possible. Avoidance of those risks fully justifies the costs of the Plan. An added benefit is that the Plan will enable states to grow their economies and increase employment in their states by making smart choices about energy sources, technologies, and programs to reduce emissions.

Respectfully submitted,

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CIRCUIT RULE 32(a)(2) ATTESTATION

In accordance with D.C. Circuit Rule 32(a)(2), I hereby attest that all other parties on whose behalf this joint brief is submitted concur in the brief's contents.

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CERTIFICATE OF COMPLIANCE

Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(C), I certify the following:

This brief complies with the type-volume limitations of Federal Rule of Appellate Procedure 29(d) because it contains 5,853 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii).

The brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule Appellate Procedure 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word 2016 in Times New Roman 14-point font.

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CERTIFICATE OF SERVICE

I hereby certify that on this 1st day of April, 2016, a true and correct copy of the foregoing *Amici Curiae* Brief of Sustainable Business Organizations in Support of Respondent was filed with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit via this Court's CM/ECF system, which will send notice of such filing to all counsel who are registered CM/ECF users, and that I served via first class mail a copy of the foregoing Brief on the parties and counsel who are not registered CM/ECF users.

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