

State-Level Regulation as the Ideal Foundation for Action on Climate Change: A Localized Beginning to the Solution of a Global Problem

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NOTE

STATE-LEVEL REGULATION AS THE IDEAL FOUNDATION FOR ACTION ON CLIMATE CHANGE: A LOCALIZED BEGINNING TO THE SOLUTION OF A GLOBAL PROBLEM

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INTRODUCTION

Climate change is a global issue that has been gaining awareness on the local, national, and international levels for decades, but thus far the United States has taken very little meaningful governmental action to address the current effects of climate change or to attempt to reduce future impacts. Although there have been some efforts—ranging from purely symbolic to potentially impactful—at all levels of governance to address the causes and effects of climate change, through response, mitigation or adaptation, so far these have all fallen short of what many scientists believe is necessary to avoid the most severe or irreversible consequences. Because climate change is, by its nature, a broad issue that affects the entire planet, it might seem logical to assume that it primarily requires an international solution.¹ However, the current political climate, both among the international community and within the United States, has made an effective and timely international or national solution almost impossible. Even the significant 2015 Paris Agreement, widely considered an international climate-change law success story, largely lacks binding language and enforcement mechanisms and contains a simple withdrawal clause, leaving the door open for the next U.S. president to withdraw easily.² Considering the existing barriers to larger-scale action and absent a major event causing a sudden and dramatic shift in political will,³ the most

¹ See David Adelman & Kirsten H. Engel, *Adaptive Federalism: The Case Against Reallocating Environmental Regulatory Authority*, 92 MINN. L. REV. 1796, 1798, 1846 (2008) (“[R]egulatory authority should reside at the level of government that roughly ‘matches’ the geographic scope of the subject environmental problem. Hence . . . climate change should be addressed at the international level.” “[C]limate change is widely regarded as the textbook example of a global commons problem that is best addressed at the national and international levels.”).

² Adoption of the Paris Agreement, art. 28, U.N. Doc. FCCC/CP/2015/L.9/REV.1 (Dec. 12, 2015).

³ See Adelman & Engel, *supra* note 1, at 1841 (“Numerous scholars have acknowledged the importance of . . . dramatic events [such as Love Canal; the Bhopal, India tragedy; and the Exxon Valdez oil spill] in prompting congressional action on [federal environmental] statutes . . .”).

effective approach to addressing climate change within the United States is at the state level, through agency regulatory action.

With global average temperatures rising,⁴ there has been a correlated increase in the frequency of certain natural disasters, including wildfires, droughts, floods, hurricanes, and others.⁵ While no single event can be said to have been caused solely by climate change, numerous scientists have shown that climate change influences various factors that lead to an increased rate of such events occurring.⁶ Additionally, sea level rise and ocean acidification is directly related to climate change, and many coastal areas in the United States have begun to experience the effects of the rising oceans.⁷ Human, animal and plant life have already been adversely affected by climate change, and these effects will only increase in intensity over time unless serious steps are taken to mitigate the effects of and adapt to climate change.⁸ The effects of climate change have already begun to significantly shape national and international politics, result in negative economic impacts, influence international relations, and affect national security and immigration concerns.⁹

Considering the need for governmental action to prevent climate change from becoming more severe and to respond to its current effects, the issue of how advocates of U.S. action on climate change should focus their efforts on inspiring government action is a critically important one. Although a coordinated and concerted effort at all levels of government would clearly be the ideal approach to addressing climate change,¹⁰ the current political reality in the United States minimizes the

⁴ JERRY M. MELILLO ET AL., CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 8 (2014) (“U.S. average temperature has increased by 1.3° F to 1.9° F since 1895, and most of this increase has occurred since 1970.”); see also Justin Gillis, *2015 Likely to Be Hottest Year Ever Recorded*, N.Y. TIMES (Oct. 21, 2015), <http://www.nytimes.com/2015/10/22/science/2015-likely-to-be-hottest-year-ever-recorded.html> [<https://perma.cc/8GRB-KNAT>] (documenting the temperature increases of 2015 and predicting that it will be the hottest year yet recorded); Tom Randall & Blacki Migliozi, *2014 Was the Hottest Year on Record*, BLOOMBERG (Jan. 16, 2015), <http://www.bloomberg.com/graphics/2014-hottest-year-on-record/> [<https://perma.cc/R78E-GR59>] (demonstrating that 2014 was the hottest year yet recorded).

⁵ MELILLO ET AL., *supra* note 4, at 8–11.

⁶ See *id.* at 8–11.

⁷ See *id.* at 9–10.

⁸ See *id.* at 12–13.

⁹ See *id.* at 13, 591, 621, 826.

¹⁰ See HARI M. OSOFSKY & LESLEY K. MCALLISTER, CLIMATE CHANGE LAW AND POLICY 266 (2012) (“The advantage of a polycentric approach is that it encourages experimentation by multiple actors, as well as the development of methods for

possibility of a sufficiently significant commitment to curb emissions occurring within the requisite timeframe.¹¹ Scientists have found that in order to prevent the most catastrophic effects of climate change from becoming nearly inevitable, global average temperatures can increase no more than 2° C beyond 1990 temperatures.¹² Achieving this would necessitate stabilizing atmospheric carbon dioxide concentrations somewhere between 350–400 parts per million and would require an approximately 80% reduction in carbon dioxide emissions below current levels by 2050 for most industrialized countries.¹³

Despite the abundant availability of scientific research expounding the measures that are necessary to prevent or mitigate the effects of climate change, politicians and policymakers—particularly in the United States—have largely failed to act. Unfortunately, it is probable that a major instigating event or crisis will be necessary to spur significant political action.¹⁴ However, in the absence of a shift in political will, one somewhat counterintuitive approach to governmental action could prove the most effective means of addressing climate change in the United States.

This Note argues that the most effective approach to addressing climate change in the current political environment is to focus on state-level regulatory action. Part I of this Note provides the context and brief overview of governmental efforts to address climate change at the state, regional, and federal levels, and in the international context. In Part II, this Note presents arguments against placing the primary focus of governmental efforts at the regional, federal, or international levels and against focusing more on state legislation than on state regulation. Part III advocates for pursuing governmental action on climate change at the state level, particularly through regulation. The Note concludes by highlighting that this argument is made within the context of the current political environment, and emphasizes the importance of U.S. governmental action on climate change at all levels simultaneously whenever possible.

assessing the benefits and costs of particular strategies adopted in one setting and comparing these with results obtained in other settings.”).

¹¹ See *id.* (“[O]ptimal’ solutions for making substantial reductions in the level of [greenhouse gases] emitted into the atmosphere are only a dream.”); see also *2015 Anti-Environmental Budget Riders*, NATURAL RESOURCES DEFENSE COUNSEL, <http://www.nrdc.org/legislation/2015-riders.asp> [<https://perma.cc/K9Y5-CPMH>] (last updated Nov. 18, 2015) (listing anti-environmental riders added to spending bills for fiscal year 2016).

¹² See CHRIS WOLD ET AL., *CLIMATE CHANGE AND THE LAW* 45–46 (2009).

¹³ See *id.*

¹⁴ See Adelman & Engel, *supra* note 1, at 1841.

I

CLIMATE CHANGE LAW AND REGULATION IN THE
UNITED STATESA. State-Level Legislation and Regulation
of Climate Change

To date, at least thirty-five states have adopted some method of reducing or capping greenhouse gas emissions within their borders.¹⁵ As of 2008, twenty-six states and the District of Columbia had established renewable portfolio standards for energy suppliers that require a certain percentage of their portfolio to come from renewable power sources.¹⁶ For most of these programs, the percentage required to come from renewable sources increases gradually over time so that energy suppliers have sufficient time to adjust.¹⁷

The clear leader among the states in terms of action to address climate change is California. The second highest emitter after Texas, California ranks among the “top 20 emitters in the world, including all countries” but, more so than Texas, California has taken significant steps to mitigate its contribution to climate change.¹⁸ In 2006, California passed a landmark climate change law, the California Global Warming Solutions Act, which acknowledged that global warming posed a serious threat to the state and set goals for emission reductions.¹⁹ California also committed to significant water-use reductions in 2009, aiming for a 20% reduction in per capita water use by 2020.²⁰

California’s state version of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA) is particularly interesting because its application to climate change has the potential to “force substantive changes in agency practices.”²¹ This may be the case because CEQA “prohibits an agency from approving a project that will have significant environmental impacts if feasible alternatives or

¹⁵ See Vivian E. Thomson & Vicki Arroyo, *Upside-Down Cooperative Federalism: Climate Change Policymaking and the States*, 29 VA. ENVTL. L.J. 1, 3 (2011).

¹⁶ WOLD ET AL., *supra* note 12, at 841.

¹⁷ See *id.*

¹⁸ OSOFSKY & MCALLISTER, *supra* note 10, at 267.

¹⁹ See *id.* at 267–69; WOLD ET AL., *supra* note 12, at 845–49.

²⁰ Patricia Romero-Lankao et al., *North America*, in CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY; PART B: REGIONAL ASPECTS CONTRIBUTION OF WORKING GROUP II TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 1450 (V.R. Barros et al. eds., 2014).

²¹ WOLD ET AL., *supra* note 12, at 857–58.

feasible mitigation measures could avoid or substantially lessen those impacts.”²²

One of California’s most influential and contentious efforts at addressing greenhouse gas emissions has been spearheaded by the California Air Resources Board (CARB), established in 1967, which “sets air quality standards and regulates vehicular emissions.”²³ California ran into trouble when the state enacted a law requiring CARB to establish greenhouse gas emission standards for vehicles and CARB complied by setting standards that would go into effect in 2009.²⁴ Automakers sued CARB, claiming it was preempting federal authority to set fuel efficiency standards, and the “Environmental Protection Agency [(EPA)] refused to grant California a Clean Air Act waiver, which is needed to adopt state auto emission standards that are stricter than federal limits.”²⁵ It was not until 2009 that the EPA, under President Barack Obama, not only granted California its request for a Clean Air Act waiver but also built upon California’s program to develop new federal emission standards.²⁶

New York closely follows California as a leader among U.S. states in developing climate change policy and regulation. New York has more stringent laws and regulations regarding environmental impacts of state actions than most other states due to its State Environmental Quality Review (SEQR) requirements.²⁷ Similar to California’s CEQA, New York’s SEQR law resembles NEPA, and it requires that all government actors conduct an environmental impact assessment before going forward with almost all state activities, projects, or permits.²⁸

²² *Id.* at 858.

²³ Thomson & Arroyo, *supra* note 15, at 13.

²⁴ *See id.* at 13–14.

²⁵ *Id.* at 14.

²⁶ *See id.* (“The EPA projects that nationwide greenhouse gas emissions from the ‘light-duty fleet’ (cars and light trucks) will be twenty-one percent lower in 2030 as a result of these harmonized rules, and that owners of model-year 2016 cars will save \$4000 in fuel costs over the life of their vehicles, which will more than offset the vehicles’ modest increased cost (\$1000).”).

²⁷ *See* Michael Lewyn, *How Environmental Review Can Generate Car-Induced Pollution: A Case Study*, 14 SUSTAINABLE DEV. L. & POL’Y 16, 16 (2014); SEQR: *Environmental Impact Assessment in New York State*, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, <http://www.dec.ny.gov/permits/357.html> [<https://perma.cc/8LHV-444A>] [hereinafter NYS DOEC, SEQR]; *see also* WOLD ET AL., *supra* note 12, at 857 (noting that state governments, including New York’s, have begun implementing “little NEPA” laws).

²⁸ *See* NYS DOEC, SEQR, *supra* note 27.

In 2002, New York announced an Energy Plan that set ambitious and aggressive emission reduction goals.²⁹ The Energy Plan aims to “reduce the state’s energy intensity (consumption per unit of GDP), make the state more energy self-sufficient, diversify its energy sources, rely more on the state’s natural energy supplies, and reduce greenhouse gas emissions . . . five percent below 1990 levels by 2010 and ten percent below 1990 levels by 2020.”³⁰

Recently, New York took significant steps toward addressing climate change when it enacted the Community Risk and Resiliency Act in 2014.³¹ This act grants certain state agencies significant regulatory authority over climate change adaptation and mitigation measures and requires that all state funds and permits take climate change risks, mitigation, and adaptation into account.³² New York is the only state in the country with requirements that state funds and permitting processes must all take climate change into account.³³ The enactment of the Community Risk and Resiliency Act was particularly notable because it passed with broad bipartisan support in the wake of recent disasters such as Hurricane Irene in 2011 and Hurricane Sandy in 2012.³⁴

In Maryland, what started as a plan for coastal resources expanded and developed to include “human health, agriculture, ecosystems, water resources, and infrastructure.”³⁵ The State of Washington has developed a climate change adaptation plan with numerous focus areas, including: the natural environment, ecosystems, species, habitat, natural resources,

²⁹ See Thomson & Arroyo, *supra* note 15, at 20.

³⁰ *Id.*

³¹ New York State Community Risk and Resiliency Act, HR A6558B 2013 Leg., Reg. Sess. (N.Y. 2014) (enacted), http://assembly.state.ny.us/leg/?default_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=&Text=Y [<https://perma.cc/CT5B-G57D>]; see also Katherine Bagley, *Climate Change Law in New York Bridges Partisan Divide*, INSIDE CLIMATE NEWS (Aug. 5, 2014), <http://insideclimatenews.org/news/20140805/climate-change-law-new-york-bridges-partisan-divide> [<https://perma.cc/2HGM-9HRL>] (examining the events that precipitated the law and its bipartisan nature); Jessica Piccinini, *Gov. Signs Risk and Resiliency Act to Help Government Deal with Climate Change, Stronger Storms*, THE LEGISLATIVE GAZETTE (Sept. 23, 2014), <http://www.legislativegazette.com/Articles-Top-Stories-c-2014-09-23-89297.113122-Gov-signs-Risk-and-Resiliency-Act-to-help-government-deal-with-climate-change-stronger-storms.html> [<https://perma.cc/F8U2-R8KW>] (outlining the aims and impacts of the law).

³² See New York State Community Risk and Resiliency Act, *supra* note 31; Piccinini, *supra* note 31.

³³ See Bagley, *supra* note 31.

³⁴ See *id.*

³⁵ Romero-Lankao et al., *supra* note 20, at 1475.

infrastructure, communities, human health, and security.³⁶ Washington, Oregon, and Massachusetts have all implemented regulatory programs that either limit emissions from coal-fired power plants or require that the power plants offset a portion of their emissions.³⁷ In addition, Massachusetts adopted the Greenhouse Gas Emissions Policy in 2007 that mandates the quantification of greenhouse gas emissions for many state projects and the development of alternatives to the projects that include measures to “avoid, minimize, or mitigate” emissions.³⁸

Numerous other states have taken moderate to significant actions toward addressing climate change through mitigation or adaptation,³⁹ although there are a number of states that have not yet taken any legislative or regulatory steps regarding climate change.⁴⁰ However, as a result of the recent Clean Power Plan promulgated under the Environmental Protection Agency’s Clean Air Act authority, almost every state will now be required to implement emissions reduction plans.⁴¹ The Clean Power Plan may result in an increase in non-federally mandated state action on climate change as each state evaluates where it can best curb emissions to comply with the plan. However, the Clean Power Plan is currently being challenged in the courts by a coalition of states, corporations, and industry groups, and the case is likely to eventually reach the Supreme Court.⁴² Overall, however, the trend among states taking independent action appears to be in the direction of states such as California, New York, and Massachusetts.

B. Regional Approaches to Climate Change Mitigation and Adaptation

There are multiple—occasionally overlapping—regional initiatives in North America that attempt to address climate

³⁶ *Id.*

³⁷ See WOLD ET AL., *supra* note 12, at 852.

³⁸ *Id.* at 857.

³⁹ See Thomson & Arroyo, *supra* note 15, at 21 (referring to Maryland, Texas, and Florida as “‘surprise states’ . . . because the policies affecting greenhouse gas emissions in these states are more aggressive than would be expected”).

⁴⁰ See *id.* at 26 (“State policymakers in Virginia, Louisiana, and South Carolina have done little to reduce greenhouse gas emissions, directly or indirectly.”).

⁴¹ Clean Power Plan, 80 Fed. Reg. 64,661, 64,663–64 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

⁴² See Coral Davenport, *Court Rejects a Bid to Block Coal Plant Regulations*, N.Y. TIMES (Jan. 21, 2016), <http://www.nytimes.com/2016/01/22/us/politics/court-rejects-bid-to-delay-obama-rule-on-climate-change.html> [<https://perma.cc/6AMR-JGKD>].

change in various ways, predominantly through the regulation of greenhouse gases.⁴³ North America 2050 is a multi-regional collaborative focused on mitigating the effects of climate change and working toward low-carbon economies.⁴⁴ The Pacific Coast Collaborative, which includes U.S. states along the west coast and British Columbia, concentrates on investments in clean energy and promoting low-carbon development initiatives.⁴⁵ The Midwest Greenhouse Gas Reduction Accord was launched in 2007 by six Midwestern states and the governor of Manitoba, Canada, and the members agreed to establish emission targets and to develop a regional cap-and-trade program.⁴⁶ The Transportation and Climate Initiative includes eleven northeastern and mid-Atlantic state members along with the District of Columbia.⁴⁷ This organization was founded to facilitate collaboration between these jurisdictions and to “develop a clean energy economy and reduce greenhouse gas emissions in the transportation sector.”⁴⁸

Only two regional initiatives in the United States implement greenhouse gas emissions cap-and-trade programs. There is the Regional Greenhouse Gas Initiative (RGGI), a group of nine northeastern states, led primarily by New York, engaged in the first mandatory cap-and-trade program for carbon dioxide emissions in the United States.⁴⁹ This program allows member states to sell emission allowances through auctions and the proceeds are used by the states to invest in renewable energy and green infrastructure projects.⁵⁰ The initial goal for the RGGI was “to meet 2005 emission levels by 2009 and then reduce[] emissions by 10 percent below 2009 levels by the end of 2018.”⁵¹ The other initiative using a cap-and-trade program, the Western Climate Initiative (WCI), focuses on emissions trading programs, and its membership includes California, British Columbia, and Quebec.⁵² California was criti-

43 See *Multi-State Climate Initiatives*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS, <http://www.c2es.org/us-states-regions/regional-climate-initiatives> [<https://perma.cc/QEB2-TRLY>].

44 See *id.*

45 See *id.*

46 See *id.*

47 See *id.*

48 *Id.*

49 See REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org> [<http://perma.cc/6KLH-WDS4>] (“[RGGI] is the first market-based regulatory program in the United States to reduce greenhouse gas emissions.”); *Multi-State Climate Initiatives*, *supra* note 43.

50 See Regional Greenhouse Gas Initiative, *supra* note 49.

51 WOLD ET AL., *supra* note 12, at 830.

52 See *Multi-State Climate Initiatives*, *supra* note 43.

cal to the establishment of WCI, which has an overall goal to achieve a reduction in emissions within the region of 15% below 2005 levels by 2020.⁵³

C. Federal Legislation and Regulation of Climate Change

Although the federal government took significant action regarding environmental issues decades ago when it enacted legislation such as the Clean Air Act, the Clean Water Act, the Endangered Species Act, and the National Environmental Policy Act, there has been limited legislative action and no significant revisions or updates made to the laws since their enactment to reflect improved knowledge regarding climate change's causes and effects. Additionally, there has been no federal legislation specifically addressing or focusing on climate change.

In 2002, President Bush announced a climate change policy that focused on greenhouse gas intensity targets and voluntary reporting of emission reductions for businesses.⁵⁴ In 2009, under the leadership of President Obama, the federal government began implementing a plan to have all federal agencies assess climate change adaptation in all of their decision-making processes and to initiate adaptation strategies.⁵⁵ Since the implementation of this plan, "the [U.S.] Department of Interior created Climate Science Centers" and the EPA's "Office of Water developed a climate change strategy."⁵⁶ In June 2014, President Obama and the Environmental Protection Agency announced the Clean Power Plan, which includes the first national carbon pollution standards for existing power plants and aims for a "32 percent reduction in carbon pollution [from the power sector] by 2030."⁵⁷ The Clean Power Plan, regulation promulgated under existing Clean Air Act authority, is the most significant direct effort to address climate change to date in the United States.⁵⁸ However, despite the significant strides made by this plan, it still faces legal and political chal-

⁵³ OSOFSKY & MCALLISTER, *supra* note 10, at 269.

⁵⁴ WOLD ET AL., *supra* note 12, at 479–82.

⁵⁵ Romero-Lankao et al., *supra* note 20, at 1475.

⁵⁶ *Id.*

⁵⁷ *Climate Change and President Obama's Action Plan*, THE WHITE HOUSE, <http://www.whitehouse.gov/climate-change> [<http://perma.cc/C8SQ-T4LC>].

⁵⁸ Clean Power Plan, 80 Fed. Reg. 64,661, 64,663–64 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60); see Amanda Stone & Mae Bowen, *What the Clean Power Plan Means for America*, THE WHITE HOUSE (Aug. 3, 2015, 9:35 AM), <https://www.whitehouse.gov/blog/2015/08/03/what-clean-power-plan-means-america> [<https://perma.cc/6LZJ-6JGR>].

lenges and is vulnerable to the possibility that a less climate-focused president could take office and reverse course.⁵⁹

Although this Note refers only to a limited number of the actions taken at the federal level, including somewhat significant recent efforts, overall there has been very little federal action in support of addressing climate change. Additionally, Congress has actually made a significant number of efforts to prevent certain actions to address climate change.⁶⁰ For example, Congress has attempted, and occasionally succeeded, in passing bills that either preempt existing state regulations addressing climate change or that prohibit state measures above a certain standard in order to protect business interests against stringent state regulation.⁶¹

D. International Responses to Climate Change

In 1992, the United States became a party to the United Nations Framework Convention on Climate Change (UNFCCC), a nonbinding treaty agreement expressing the importance of stabilizing greenhouse gas concentrations in the atmosphere at a level that would not be seriously harmful to the planet.⁶²

Since the UNFCC, there have been no major binding international treaties on climate change,⁶³ although the international community recently committed to significant emissions

⁵⁹ See Davenport, *supra* note 42; Lauren Leatherby, *Where Presidential Candidates Stand on Climate Change*, NPR (Aug. 11, 2015, 7:03 AM), <http://www.npr.org/sections/itsallpolitics/2015/08/11/429781692/where-presidential-candidates-stand-on-climate-change> [<https://perma.cc/6MUM-6EQK>].

⁶⁰ Chris Mooney, *Amid Record Global Temperatures, Senate Votes to Block Obama's Clean Power Plan*, WASH. POST (Nov. 17, 2015), <https://www.washingtonpost.com/news/energy-environment/wp/2015/11/17/amid-record-global-temperatures-congress-to-vote-to-stop-obamas-clean-power-plan/> [<https://perma.cc/YZ8K-FJC7>].

⁶¹ See Adelman & Engel, *supra* note 1, at 1796–97, 1801 n.16 (2008) (discussing Congress' attempts to preempt state actions intended to limit greenhouse gas emissions and noting that businesses advocate for “ceilings” on regulation to limit states' power); PAUL TESKE, *REGULATION IN THE STATES* 14–15 (2004) (“[M]ore federal preemptions have occurred in recent decades than over the rest of U.S. history”); see, e.g., H.R. 2927, 110th Cong. § 2(a) (2007) (preempting state laws and regulations on tire fuel efficiency that deviate from requirements set by the Department of Transportation); Alternative Fuel Standard Act of 2007, S. 1158, 110th Cong. § 2 (2007) (preempting state laws and regulations regarding renewable energy content in fuels when the EPA issues a waiver).

⁶² See Thomson & Arroyo, *supra* note 15, at 4; see generally United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107, available at http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf [<http://perma.cc/S46H-7229>].

⁶³ See ROSEMARY RAYFUSE & SHIRLEY V. SCOTT, *INTERNATIONAL LAW IN THE ERA OF CLIMATE CHANGE* 4 (2012).

reductions in the Paris Agreement.⁶⁴ The Kyoto Protocol,⁶⁵ which was intended to build off of the foundation laid by the UNFCCC, “failed to attract the participation and/or compliance of major developed economy emitters during its first commitment period (2008 to 2012) and did not . . . impose emissions reduction obligations on developing states.”⁶⁶ In 2009, the United Nations Climate Change Conference in Copenhagen ended in failure with only a symbolic political document, the Copenhagen Accord, to show as a result.⁶⁷ Expectations were lowered for the 2012 United Nations Conference on Sustainable Development in Rio de Janeiro, Brazil (known as Rio+20, to mark the twentieth anniversary of the 1992 United Nations Conference on Environment and Development) and many heads of state, including President Obama, did not attend.⁶⁸ However, President Obama has taken certain important steps in the international arena to curb climate change, most notably the agreement in November 2014 with China’s president, Xi Jinping, to limit carbon dioxide emissions within the United States and China “around 2030,” and the Paris Agreement.⁶⁹ The Paris Agreement, although largely non-binding in order to circumvent the U.S. requirement of having treaties approved by the Senate, is the most significant international action addressing climate change and was notable for its success at obtaining commitment from both developed and still-developing countries.⁷⁰ This agreement requires countries to report on

⁶⁴ Adoption of the Paris Agreement, *supra* note 2.

⁶⁵ See Conference of the Parties to the Framework Convention on Climate Change: Kyoto Protocol, 37 I.L.M. 22 (1998) (opened for signature Mar. 16, entered into force Feb. 16, 2005).

⁶⁶ See RAYFUSE & SCOTT, *supra* note 63, at 4 (2012).

⁶⁷ See *id.*; see also Framework Convention on Climate Change, Report of the Conference of the Parties on its Fifteenth Session, Held in Copenhagen from 7 to 19 December 2009, FCCC/CP/2009/11/Add.1 (Mar. 30, 2010); *Why Did Copenhagen Fail to Deliver a Climate Deal?*, BBC News (Dec. 22, 2009, 4:33 PM), <http://news.bbc.co.uk/2/hi/8426835.stm> [<http://perma.cc/83SH-UU6G>].

⁶⁸ See *About the Rio+20 Conference*, RIO+20 UNITED NATIONS CONFERENCE ON SUSTAINABLE DEVELOPMENT, <http://www.uncsd2012.org/about.html> [<http://perma.cc/S46H-7229>]; see also Bryan Walsh, *What the Failure of Rio+20 Means for the Climate*, TIME (June 26, 2012), <http://content.time.com/time/health/article/0,8599,2118058,00.html> [<https://perma.cc/25N3-6XUC>].

⁶⁹ Edward Wong, *China’s Climate Change Plan Raises Questions*, N.Y. TIMES (Nov. 12, 2014) <http://www.nytimes.com/2014/11/13/world/asia/climate-change-china-xi-jinping-obama-apec.html?action=click&contentCollection=politics&module=relatedCoverage®ion=marginalia&pgtype=article> [<https://perma.cc/QSX3-ARD2>].

⁷⁰ Press Release, The White House, U.S. Leadership and the Historic Paris Agreement to Combat Climate Change, (Dec. 12, 2015), <https://www.whitehouse.gov/the-press-office/2015/12/12/us-leadership-and-historic-paris-agreement-combat-climate-change> [<https://perma.cc/6TFN-LMHH>].

their progress in reducing emissions and addressing climate change every five years, and to commit to further emissions reductions after each five-year period.⁷¹ Although historic and a remarkable achievement in international diplomacy, under the current commitments made by the countries party to the Paris Agreement, global emissions levels still will not be reduced rapidly enough to avoid the predicted tipping point.⁷²

As evidenced by the largely non-binding nature of the Paris Agreement, without support in the Senate, the U.S. president—Obama or whoever comes next—is not able to make commitments on a large enough scale to tackle all of the causes and effects of climate change at the international level. Additionally, U.S. commitment to addressing climate change through international efforts is largely dependent on the party politics of the president, and many of the current commitments could be withdrawn from easily, including the Paris Agreement, if a president who does not believe in or support action on climate change assumes office.

II

BIGGER IS NOT ALWAYS BETTER: WHY LARGER-SCALE ATTEMPTS AT ADDRESSING CLIMATE CHANGE ARE LESS EFFECTIVE

A. The Inefficiencies and Uncertainties of International Action

Political gridlock at the national level is one of the major reasons that the United States has not yet made significant international commitments regarding climate change and curbing greenhouse gas emissions. The attempts at reaching agreement in international climate change talks in recent years have all resulted in failure,⁷³ in large part due to the fact that developing countries are unwilling to commit to reducing their impact on climate change when the United States and other industrialized countries refuse to commit to more substantial reductions.⁷⁴ Developing countries claim that industrialized countries have already gotten their “head start” and should

⁷¹ *Id.*

⁷² Fiona Harvey, *Paris Climate Change Agreement: The World's Greatest Diplomatic Success*, GUARDIAN (Dec. 14, 2015, 2:51 PM), <http://www.theguardian.com/environment/2015/dec/13/paris-climate-deal-cop-diplomacy-developing-united-nations> [https://perma.cc/674A-78PU].

⁷³ See RAYFUSE & SCOTT, *supra* note 63, at 4; see also Walsh, *supra* note 68.

⁷⁴ See *Why Did Copenhagen Fail*, *supra* note 67; John Vidal et al., *Low Targets, Goals Dropped: Copenhagen Ends in Failure*, GUARDIAN (Dec. 18, 2009, 7:47 PM), <http://www.theguardian.com/environment/2009/dec/18/copenhagen-deal> [http://perma.cc/GDX3-UBTZ].

commit to greater cutbacks to reflect the greater period of time spent emitting a higher percentage of pollutants.⁷⁵ Until the United States agrees to much more significant reductions in emissions or some other arrangement that reflects the greater impact that the U.S.'s development and current economy has on the climate, any meaningful international agreement is extremely unlikely. While the recent Paris Agreement has largely overcome this particular political obstacle by allowing countries to participate independently using five-year cycles and increasing emissions reductions targets, this agreement remains somewhat precarious because of its largely non-binding nature, the lack of enforcement mechanisms, and the ease with which countries can withdraw.

One of the only earlier international climate change agreements to which the U.S. committed, the United Nations Framework Convention on Climate Change, was only committed to because it contained no legally-binding provisions and instead simply discussed voluntary measures that states could take to address climate change and limit greenhouse gas emissions.⁷⁶ This agreement was followed by the 1997 Kyoto Protocol, which the United States signed but never even submitted to the Senate for possible ratification.⁷⁷ All efforts at international agreement on binding provisions limiting emissions and addressing climate change have failed to achieve significant commitments, particularly from the United States.⁷⁸

Even significant developments such as the recent climate agreement between the U.S. and China are vague, open-ended, and leave parties with significant room to maneuver.⁷⁹ Moreover, many scientists and policymakers view the agreement between the United States and China as achieving only the bare minimum, and argue that both countries, but especially China, should be committing to even more significant reductions in greenhouse gas emissions.⁸⁰ While the agreement between the U.S. and China may have helped pave the way for the Paris Agreement, which successfully balanced the interests of developed and developing countries, this agreement remains largely

⁷⁵ See Vidal et al., *supra* note 74.

⁷⁶ See Thomson & Arroyo, *supra* note 15, at 4; see generally United Nations Framework Convention on Climate Change, *supra* note 62.

⁷⁷ See Thomson & Arroyo, *supra* note 15, at 5.

⁷⁸ See Vidal et al., *supra* note 74; Walsh, *supra* note 68; *Why Did Copenhagen Fail*, *supra* note 67.

⁷⁹ See Wong, *supra* note 69.

⁸⁰ See *id.*

non-binding and has yet to be tested by time, changes in U.S. administrations, or shifts in global politics.

B. The Improbability of Significant Federal Legislative or Regulatory Action

Despite the fact that the vast majority of the scientific and academic communities recognize the reality of climate change and advocate taking action to mitigate its effects and adapt to its consequences, the political will to take national-level action regarding climate change is lacking. Among the general public, about 67% of Americans believe that global warming is occurring and about 44% of Americans believe that it is caused primarily by human activity.⁸¹

However, there are distinct partisan divides hidden within these general percentages. Among Democrats or Democrat-leaning Americans, 84% believe that there is “solid evidence the earth is warming” and 64% attribute this to human activity.⁸² Within the Republican Party and Republican-leaning Americans, 46% believe climate change is occurring and only 23% think that this is due to human activity.⁸³ While the contrasting perspectives illustrated by these percentages show that there is a certain ideological divide regarding climate change in the United States, this gap between Democrats and Republicans expands dramatically and disproportionately within Congress. Although necessarily imprecise (some Republican Congress-people have not publicly clarified their views on climate change), one recent estimate found that the proportion of Republican representatives willing to acknowledge that climate change is real is shockingly low at approximately 3%.⁸⁴

The divide in beliefs regarding the validity of climate change between the political parties at the national level is disproportionately wide and has resulted in political gridlock on the issue. Moreover, this current unyielding tension is unlikely to relent in the near future. With the Republicans controlling the House and the Senate at least through the end of

⁸¹ *GOP Deeply Divided Over Climate Change*, PEW RESEARCH CENTER (Nov. 1, 2013), <http://www.people-press.org/2013/11/01/gop-deeply-divided-over-climate-change/11-1-13-1-new/> [<http://perma.cc/F99M-CZM6>].

⁸² *Id.*

⁸³ *Id.*

⁸⁴ Julie Kliegman, *Jerry Brown Says ‘Virtually No Republican’ in Washington Accepts Climate Change Science*, POLITIFACT (May 18, 2014, 3:49 PM), <http://www.politifact.com/truth-o-meter/statements/2014/may/18/jerry-brown/jerry-brown-says-virtually-no-republican-believes-/> [<https://perma.cc/5Y3G-TD28>].

2016, there will almost certainly be no meaningful legislation in the near future regarding climate change absent a significant change in political will.

Additionally, previous efforts at federal action on climate change have resulted in very little positive progress. In fact, Congress has a history of being actively obstructionist and regressive on climate change. In the 1990s, during the buildup to the Kyoto Protocol, the House of Representatives actively prevented spending on any measure that “could be interpreted as paving the way for implementing the Kyoto Protocol.”⁸⁵ The Senate, in anticipation of the negotiations surrounding the Protocol, passed a resolution stating opposition to any climate change treaty that did not impose obligations on developing nations or that might negatively impact U.S. economic interests.⁸⁶

The efforts at the federal level to stall or prevent action on climate change have not been limited to Congress. During President George W. Bush’s terms in office, he attempted to revoke the United States’ signature on the Kyoto Protocol even though it was non-binding on the U.S. because it had never been ratified.⁸⁷ Although the Bush administration took nominal action on climate change by implementing a policy on greenhouse gas emissions focused on emission intensity, this policy limited certain greenhouse gas emissions while simultaneously allowing for an increase in overall emissions.⁸⁸ In fact, members of the Bush administration questioned the science behind climate change and “engaged in a systematic effort to manipulate climate change science and mislead policymakers and the public about the dangers of global warming.”⁸⁹ The administration achieved this largely by “censor[ing] congressional testimony on the causes and impacts of global warming, controll[ing] media access to government climate scientists,

⁸⁵ See Thomson & Arroyo, *supra* note 15, at 5.

⁸⁶ See *id.*

⁸⁷ See *id.* at 5-6.

⁸⁸ See *id.* at 6; WOLD ET AL., *supra* note 12, at 479-82.

⁸⁹ David Biello, *Editing Scientists: Science and Policy at the White House*, SCIENTIFIC AMERICAN (Oct. 22, 2009), <http://www.scientificamerican.com/article/white-house-editing-scientists/> [<http://perma.cc/W8V3-JSW7>] (quoting a report by the House Committee on Oversight and Government Reform); see Thomson & Arroyo, *supra* note 15, at 6; see also Andrew Revkin, *Bush Aide Softened Greenhouse Gas Links to Global Warming*, N.Y. TIMES (June 8, 2005), http://www.nytimes.com/2005/06/08/politics/08climate.html?_r=0 [<https://perma.cc/9QUF-Z5LM>].

and edit[ing] federal scientific reports to inject unwarranted uncertainty into discussions of climate change.”⁹⁰

While the recently promulgated Clean Power Plan is a critical and historic step toward reducing greenhouse gas emissions, it faces constant opposition from the Republican majority in the legislature and would almost certainly be overturned under a Republican administration. The plan continues to face challenges in court and some state governors have threatened to refuse to comply, so whether the plan will indeed have its intended effect remains to be seen.⁹¹

Considering the prevailing attitudes among the congressional majority regarding climate change, the limitations on executive action without congressional support, and the possibility of a climate change denier becoming president, it is extremely unlikely that there will be any significant federal action, particularly legislation, on climate change in the near future.

C. The Shortcomings of Regional Agreements

Although regional agreements provide forums for collaboration and have potential to address uniquely regional issues, particularly interstate water issues, they lack the kind of political accountability or binding authority that would lead to greater progress toward addressing climate change. Unfortunately, there are multiple examples of regional agreements involving U.S. states collapsing, ceasing to be followed when deadlines for meeting the agreed-upon emissions reductions approach, or experiencing a significant drop in membership after only a few years.

For example, the members of the Midwest Greenhouse Gas Reduction Accord released a cap-and-trade rule in 2010, but since that time the members have ceased “pursuing their greenhouse gas goals through the Accord.”⁹² The Western Climate Initiative (WCI) started off strong in 2007 with California, Arizona, New Mexico, Oregon and Washington as founding members, and during the following four years numerous Cana-

⁹⁰ Biello, *supra* note 89; see Thomson & Arroyo, *supra* note 15, at 6; see also Revkin, *supra* note 89.

⁹¹ See Davenport, *supra* note 42; Leatherby, *supra* note 59; Alan Neuhauser, *6 Governors Threaten to Defy Obama's Clean Power Plan*, U.S. NEWS (July 10, 2015, 2:00 PM), <http://www.usnews.com/news/articles/2015/07/10/6-governors-threaten-to-defy-epa-clean-power-plan> [<https://perma.cc/8GKL-R4SH>].

⁹² See *Multi-State Climate Initiatives*, *supra* note 43.

dian provinces along with a few other U.S. states joined WCI.⁹³ However, after delaying the enforcement of certain aspects of the agreement to attempt to allow members to come into compliance, in 2011 all of the U.S. states except for California who were members of WCI formally left the organization.⁹⁴ The WCI now primarily consists of Canadian provinces working alongside California to achieve emissions reductions in the region.

D. The Marginal Utility of State Legislative Action

State legislative action has been shown to be the most effective when it grants state agencies authority to address issues relating to climate change or when it mandates that all or certain state agencies consider climate change mitigation, adaptation and costs in their decision-making processes. For example, as mentioned earlier, New York recently passed a law to this effect called the Community Risk and Resiliency Act, which, among other things, requires that state funds “and permits include consideration of the effects of climate risk and extreme weather events.”⁹⁵ This law empowers the state agencies, particularly the Department of Environmental Conservation and the Department of State, to take significant regulatory action on climate change.⁹⁶

Certain states stand out as positive examples of how state legislative action can be an effective method of permitting and promoting the regulations that can ultimately have the greatest effect on addressing climate change. For example, California, Oregon, and New Jersey have all used different approaches to regulate the greenhouse gases that contribute to climate change with varying degrees of success.⁹⁷

Other states have served as examples of gridlock and obstructionism in ways that are similar to those employed by Congress: opposition to international agreements regarding climate change, lack of cooperation with federal agencies, and a general refusal to enact laws and regulations addressing cli-

⁹³ See Western Climate Initiative, *WCI Governors' Agreement*, <http://www.westernclimateinitiative.org/document-archives/general/WCI-Governors-Agreement> [https://perma.cc/9D4H-W3LH].

⁹⁴ See *History*, WESTERN CLIMATE INITIATIVE, <http://www.westernclimateinitiative.org/history> [http://perma.cc/HK9J-UKAH]; SustainableBusiness.com News, *6 States Pull Out of Western Climate Initiative*, SUSTAINABLEBUSINESS.COM (Nov. 22, 2011, 5:29 PM), <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/23178> [http://perma.cc/2V8W-XZLV].

⁹⁵ New York State Community Risk and Resiliency Act, *supra* note 31; see Bagley, *supra* note 31; see also Piccinini, *supra* note 31.

⁹⁶ See New York State Community Risk and Resiliency Act, *supra* note 31.

⁹⁷ See Adelman & Engel, *supra* note 1, at 1798–99 n.9.

mate change causes or consequences.⁹⁸ Such refusal to even enact legislation with a broad enough grant of authority to a state agency or agencies to work independently to create regulations regarding climate change seriously restricts the regulatory work that agencies can accomplish.

State legislation works best to address climate change when it enables agency regulatory action, but legislation alone is largely ineffective as a method of instigating significant action toward addressing climate change.

III

INSTIGATORS OF CHANGE: STATE AGENCIES AS LABORATORIES, SOURCES OF INSPIRATION, AND EFFECTIVE IMPLEMENTERS

A. It's Already Working: The Effects of State Regulation of Climate Change

States are uniquely positioned to build the foundation for action on climate change, in part due to their primary authority over certain key policy areas that are critical to addressing climate change, including transportation, water, land use, energy, and economic development.⁹⁹ Many states have already begun to demonstrate the effective spread of climate change regulation approaches among themselves, and this has strong potential to build to a critical mass and inspire federal action.¹⁰⁰

Thirty-four states and the District of Columbia have taken significant action by completing Climate Action Plans, which include estimations of the state's greenhouse gas emissions, summaries of probable impacts of climate change in the state, and recommendations for climate change adaptation and mitigation within the state.¹⁰¹ As discussed in subpart I.A of this Note, certain states, particularly California and New York,

⁹⁸ See *id.*

⁹⁹ See OSOFSKY & MCALLISTER, *supra* note 10, at 267.

¹⁰⁰ See Adelman & Engel, *supra* note 1, at 1847 (“[I]t is state and local governments, not the federal government, that have taken the lead on climate change policy initiatives.”).

¹⁰¹ See WOLD ET AL., *supra* note 12, at 857; *Climate Action Plans*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS, <http://www.c2es.org/us-states-regions/policy-maps/climate-action-plans> [<https://perma.cc/HSZ8-2DM7>] (“The plans detail steps that the states can take to reduce their contribution to climate change. The process of developing a climate action plan can identify cost-effective opportunities to reduce GHG emissions that are relevant to the state. The individual characteristics of each state's economy, resource base, and political structure provide different opportunities for dealing with climate change. However, without targets for emissions reductions, incentives for cleaner technologies, or other clear policies, climate action plans will not achieve real reductions in GHG emissions.”).

serve as strong examples of state leadership in the field of climate change policy.¹⁰²

B. Tailored Solutions: Localized Approaches to Global Issues

State agencies are uniquely situated in the political hierarchy of the United States to respond to specific state needs and to address areas of concern at a localized level.¹⁰³ In many respects, the institutions that are the most familiar with the local conditions and issues are best able to address the more localized impacts and causes of climate change.¹⁰⁴ Because “the ecological and economic diversity of the nation requires local knowledge and expertise that is often unavailable at the federal level . . . [a state-level approach] is better able to overcome this ‘knowledge problem,’ and ensure that regulatory measures take account of local conditions.”¹⁰⁵ Moreover, “state and local governments tend to be more nimble and receptive to change than the federal government.”¹⁰⁶ Because of the more narrow focus afforded by state-level regulation, these initiatives can “do a better job addressing local preferences and information about sources of climate emissions and the relative costs and benefits of mitigation strategies. In addition, . . . state and local governments may be particularly well-situated to develop [climate-change adaptation] measures.”¹⁰⁷

¹⁰² See OSOFSKY & MCALLISTER, *supra* note 10, at 267–69; WOLD ET AL., *supra* note 12, at 845–49; see also Bagley, *supra* note 31; Piccinini, *supra* note 31.

¹⁰³ See WOLD ET AL., *supra* note 12, at 871 (“[S]tate and local governments are closer to those they represent, and therefore can theoretically respond quicker and more directly to their constituents’ needs.”).

¹⁰⁴ Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130, 133 (2005) (“Environmental protection efforts are most likely to be optimal where those who bear the costs and reap the benefits of a given policy determine how best, and even whether, to address a given environmental concern.”).

¹⁰⁵ *Id.* at 137 (citation omitted).

¹⁰⁶ David L. Markell, *States as Innovators: It’s Time for a New Look to Our “Laboratories of Democracy” in the Effort to Improve Our Approach to Environmental Regulation*, 58 ALB. L. REV. 347, 356 (1994); see Paulette L. Stenzel, *Right to Act: Advancing the Common Interests of Labor and Environmentalists*, 57 ALB. L. REV. 1, 3-4 (1993) (“The process of starting on the state or local level seems to work well politically, because the public seems more willing to accept new approaches on a local or state level rather than at the national level. Individual states can choose varying mechanisms as the tools for achieving their goals. Then, those laws can be examined to see which options have proven to be the most effective.”).

¹⁰⁷ Jonathan H. Adler, *Hothouse Flowers: The Vices and Virtues of Climate Federalism*, 17. TEMP. POL. & CIV. RTS. L. REV. 433, 450 (2008).

Ecological considerations also favor a state-level approach, because the vast variations in environmental conditions, issues, and needs among states do not lend themselves to more uniform, broad, or generalized federal regulation.¹⁰⁸ A federal “one size fits all” approach to regulation cannot possibly anticipate or accommodate the actual environmental conditions and issues involved in every ecosystem in the country.¹⁰⁹ Because climate change is an inherently multiscale issue that “is the result of actions taken by actors at all scales and . . . will have effects at all scales,” an approach that has its basis in state-level regulation would simply be laying the foundation for action at other levels, both broader and more localized.¹¹⁰

In addition, the rulemaking process that state agencies undergo when developing new regulations affords the opportunity for public input at a more local level. Rulemaking can be a valuable opportunity for state citizens and interest groups to actively contribute to and shape the state agencies approach to developing regulations on climate change. Moreover, although rulemaking can be a long and tedious process at the state or the federal level, the state rulemaking process is likely to outpace the rate of progress occurring at the federal level considering the intense polarization of the political parties at the national level and the ongoing gridlock.

Although some scholars have argued that allowing the states to develop their own approaches to climate change would facilitate a “race to the bottom,” where each state competed to lower its environmental regulatory standards in order to attract the most business, this concern has proven to be largely unfounded in practice.¹¹¹ While the federal government stalled for years and failed to take any significant action on climate change, many states have ploughed resolutely ahead with implementing significant environmental and climate-change regulations, despite the fact that some states have chosen not to and might therefore be seen as having some form of a competitive advantage in attracting business.¹¹² The states

¹⁰⁸ See Adler, *supra* note 104, at 135 (“Because most environmental problems are local or regional in nature, there is a strong case that most (though not all) environmental problems should be addressed at the state and local level.”).

¹⁰⁹ See *id.* at 136 (“Ecological systems vary tremendously from one place to the next. The failure to take into account local environmental conditions—let alone local tastes, preferences, and economic conditions—leads to ‘one size fits all’ policies that fit few areas well, if at all.”).

¹¹⁰ OSOFSKY & MCALLISTER, *supra* note 10, at 264.

¹¹¹ See Adler, *supra* note 104, at 151.

¹¹² See *id.* at 156.

that have taken significant regulatory action appear to have recognized that climate change regulations alone will not deter most businesses from choosing to conduct business in a state that has other redeeming economic qualities.¹¹³ In addition, the Clean Power Plan's requirements that almost all states reduce emissions and develop state-wide plans may even the playing field and prevent some states from developing a comparative business advantage.

C. Political Considerations: Avoiding Gridlock and Inspiring Action

State agencies face a lower level of public scrutiny and are typically held less politically accountable than federal agencies or politicians at the state or federal level. Although interested members of the public and many interest groups pay close attention to agency-level action, politicians at the state level often seem to prefer to direct agencies to act rather than acting themselves through legislation. Delegating to the agencies distances the politicians from the political repercussions of the action at issue and insulates the details of the action, in most cases, from broad public scrutiny.

Additionally, state agencies by their nature tend to be more insulated from, and independent of, the political process. State agency officials do not run for office or have specific constituencies, other than the state as a whole, to consider in their decision-making processes. Moreover, a large percentage of most agencies' staff have technical backgrounds and are experts in their fields, which often means that they are more likely to consider what would be the best approach to address issues with greater objectivity and without as much regard to political considerations. While the state governor usually appoints agency heads and has significant influence over the direction that agencies take, agencies do have a certain level of insulation from state politics and can make some of the determinations regarding which regulations are necessary and how certain policies or laws should be implemented. This uniquely positions state agencies to take action on climate-change adaptation and mitigation.

Despite agencies' relative insulation from the political process, governors and state legislators are easily able to call attention to positive regulatory developments and outcomes when public knowledge of certain regulation would provide po-

¹¹³ See *id.* at 156–57.

litical benefits.¹¹⁴ In many states, particularly those that have already taken measures to address climate change, there is strong public support—and therefore significant political incentives—for state regulation of the causes and effects of climate change.¹¹⁵ Many governors have already benefitted from the positive public attention based on “their proactive stances on climate change.”¹¹⁶

Particularly if the country were to suffer a crisis related to climate change or if some other event spurred a sudden shift in opinion towards a willingness to address climate change at the national level,¹¹⁷ these state regulatory programs could serve as guidance and as examples to the federal government of what approaches have already proven successful. The federal government often draws its inspiration from state laws, regulations, and policies that have proven to be effective or that have garnered broad public support. By starting to address climate change at the state level, the states will be able to influence the federal government’s approach to climate change legislation and regulation.¹¹⁸ States have taken a variety of approaches in an effort to compel or inspire federal action on climate change: through litigation, such as *Massachusetts v. EPA*¹¹⁹ and *American Electric Power Co. v. Connecticut*;¹²⁰ through voluntary participation in emissions reductions independently or through regional initiatives; and through developing areas of state economies relating to energy efficiency and renewable energy.¹²¹

States’ actions have the potential to attract media attention and could increase public awareness of the issues related to climate change on the local and global levels.¹²² Additionally,

¹¹⁴ See OSOFSKY & MCALLISTER, *supra* note 10, at 263.

¹¹⁵ See *id.*

¹¹⁶ See *id.*

¹¹⁷ See Adelman & Engel, *supra* note 1, at 1841 (“Numerous scholars have acknowledged the importance of . . . dramatic events [such as Love Canal; the Bhopal, India tragedy; and the Exxon Valdez oil spill] in prompting congressional action on [federal environmental] statutes.”).

¹¹⁸ See *id.* at 1847 (“[S]tate and local initiatives can play an instrumental role in generating innovative policies and propelling change at higher levels of government.”).

¹¹⁹ See generally 549 U.S. 497, 532 (2007) (finding that greenhouse gases fall within the Clean Air Act’s definition of “air pollutant” and that therefore the Environmental Protection Agency had the statutory authority to regulate greenhouse gas emissions).

¹²⁰ See generally 564 U.S. 410, 411 (2011) (determining that a federal common law nuisance claim against power companies based on the companies’ carbon dioxide emissions contributing to climate change was displaced by the Clean Air Act and Environmental Protection Agency action.)

¹²¹ See OSOFSKY & MCALLISTER, *supra* note 10, at 263.

¹²² See Adelman & Engel, *supra* note 1, at 1847.

the success of state-level action could increase public support and awareness for climate-change mitigation and adaptation efforts, resulting in greater public pressure on the federal government to take significant action toward addressing climate change, on the national and international levels.¹²³

Although smaller in scale than national approaches, local and state-level mitigation and adaptation efforts impact the progression of climate change and the public's ability to respond to climate-change related crises when they occur.¹²⁴ Despite the fact that states in many ways will not experience the full benefits themselves of regulating greenhouse gas emissions, in most cases states have the potential to experience certain benefits such as reduced energy costs, decreased traffic congestion, improved air quality, decreases in respiratory illnesses such as asthma, and reductions in waste.¹²⁵

Moreover, states are best positioned to act as the "laboratories of democracy" because states are already taking different approaches to responding to climate change, and the results of various state policies and regulations can be compared and analyzed to determine which approaches are most effective in different circumstances.¹²⁶ State regulatory initiatives can function as "innovation centers"¹²⁷ and "as useful experiments on the efficacy of various climate policy measures."¹²⁸ This kind of experimental policy environment allows the states not only to develop possible solutions for federal-level regulation, but also to "compete" amongst each other to develop the most

¹²³ See *id.* at 1844–45.

¹²⁴ See OSOFSKY & MCALLISTER, *supra* note 10, at 263; see WOLD ET AL., *supra* note 12, at 871.

¹²⁵ See OSOFSKY & MCALLISTER, *supra* note 10, at 263.

¹²⁶ See WOLD ET AL., *supra* note 12, at 871 ("[S]tates have traditionally acted as laboratories for new policies and thereby allowed the federal government to adopt its own policies based on the failures and successes of state innovations."); Adelman & Engel, *supra* note 1, at 1847–48; Markell, *supra* note 106, at 358 ("As Justice Brandeis pointed out in his famous dissent in *New State Ice Co. v. Liebmann* in 1932, 'it is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.'").

¹²⁷ Markell, *supra* note 106, at 355 ("The emergence of state governments as central actors in the environmental arena should not be unexpected. It also should not be unwelcome. Concerning the former, the existence of fifty state governments, as well as many more local governments, within our federal system inherently creates both numerous 'innovation centers' and the opportunity to try a wide variety of approaches simultaneously or within short periods of time.").

¹²⁸ See OSOFSKY & MCALLISTER, *supra* note 10, at 264 (quoting Jonathan Adler, *Hothouse Flowers: The Vices and Virtues of Climate Federalism*, 17 TEMP. POL. & CIV. RTS. L. REV. 433, 450 (2008)).

effective and efficient regulatory programs.¹²⁹ The lessons learned from state efforts in this area can then be applied by any kind of jurisdiction, from the village or city level to the national or international level.¹³⁰ These lessons have the benefit of being “reality-tested” and “are more likely to have been refined and made workable” than many of the policies, laws, or regulations enacted at the federal level.¹³¹

States acting as laboratories can also inspire federal legislation or regulation for the pragmatic reason that the federal government or certain affected industries may prefer to work with one consolidated and uniform regulatory system rather than adjust state-by-state to the different rules and regulations.¹³²

Overall, states appear to be ideally placed in the U.S. political hierarchy to begin to effectively address climate change as centers of innovation; as more localized actors familiar with the political needs and economic and environmental realities within their borders; and as political actors that, although certainly affected by partisan politics, are slightly more insulated from the extreme polarization that currently exists between the political parties at the federal level.

CONCLUSION

Although it may initially appear counterintuitive to advocate approaching a global issue from a more local starting point, the political will requisite to achieving broader national or international policies, laws, or solutions to the issues of

¹²⁹ See Adler, *supra* note 104, at 137 (“[D]ecentralization, and the resulting policy experimentation and interjurisdictional competition, can encourage policy innovation as policymakers seek to meet the economic, environmental, and other demands of their constituents. As a result of such competition, states are able to learn from each others’ successes and failures. This competition allows states to act as environmental ‘laboratories’ developing new and improved ways of addressing environmental concerns.”).

¹³⁰ See WOLD ET AL., *supra* note 12, at 871 (“[B]ecause states have acted before the federal government, they have gained expertise as regulators in areas that the federal government has yet to regulate.”); Adelman & Engel, *supra* note 1, at 1847–48; Markell, *supra* note 106, at 410 (“As the federal government seeks to learn how best to reinvent itself . . . it will benefit enormously from carefully studying the experiments in environmental regulation that New York and other states have conducted and in which they are currently engaged.”).

¹³¹ Markell, *supra* note 106, at 356–58 (“Because the damage resulting from innovations ‘gone awry’ is less significant, or at least more localized, if the innovations occur at the state level rather than at the federal level, the federal government should welcome and indeed actively encourage state innovations.”).

¹³² See WOLD ET AL., *supra* note 12, at 871 (“[V]arying state policies create an uneven regulatory environment, which is difficult and costly to navigate.”); Adelman & Engel, *supra* note 1, at 1848.

climate change is simply not yet existent in the United States or within the international community. Because of the ongoing polarization and reticence of the political actors on both the national and international levels, the best approach to addressing climate change in the United States is to start with state regulatory action.

By serving as the test laboratories and centers of innovation for the federal government and by demonstrating to federal-level politicians that there is political will and economic justification behind local-level climate-change regulatory actions, state agencies are best positioned to incite larger-scale government action on climate change.¹³³ Additionally, state agencies are equipped with the expertise and information necessary to develop regulations that are specific to the individual state's climate-change adaptation and mitigation needs and strengths.¹³⁴ Although federal government action is critical to large-scale efforts to address climate change and plays a significant role in international agreements, state-level regulatory action is the ideal approach in the current political environment to build a strong foundation of U.S. action on climate change from which the other levels of government can build.

Ultimately, if there is any real "solution" to the complex and multifaceted problem of climate change, it is one that will arise out of action taken at all levels of governance.¹³⁵ Instead of succumbing to inaction and passively waiting until a global or national approach to addressing climate change is developed, states have the opportunity to start now to play a role in limiting the sources of climate change, preparing for its effects, and putting pressure on actors at all other levels to join them in taking action.¹³⁶ Until concerted action on the part of the federal government or the international community is a political possibility, state-level regulatory action provides the best hope of and inspiration for effective U.S. governmental action toward mitigating and adapting to climate change.

¹³³ Markell, *supra* note 106, at 358.

¹³⁴ See Adler, *supra* note 104, at 137.

¹³⁵ See OSOFSKY & MCALLISTER, *supra* note 10, at 266 ("We need to recognize that doing nothing until a global treaty is negotiated maximizes the risk involved for everyone. Rather than only a global effort, it would be better to self-consciously adopt a polycentric approach to the problem of climate change in order to gain benefits at multiple scales as well as to encourage experimentation and learning from diverse policies adopted at multiple scales.").

¹³⁶ See *id.*