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## States Rise to the Front of Climate Legislation, but Can a State-Level Carbon Tax Work?

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# STATES RISE TO THE FRONT OF CLIMATE LEGISLATION, BUT CAN A STATE-LEVEL CARBON TAX WORK?

KATELYN NICASIO\*

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## INTRODUCTION

Understanding of the climate change phenomenon is relatively new.<sup>1</sup> Although acceptance of the phenomenon is now widespread, there is no consensus over the scope of each pollutant’s contribution to the problem and, even more so, an effective response to the issue.<sup>2</sup> Nevertheless, abundant scientific evidence shows that the

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1. Roberta Mann, *Waiting to Exhale?: Global Warming and Tax Policy*, 51 AM. U. L. REV. 1135, 1141 (2002) (“[G]lobal warming first entered the public consciousness in the late 1980s . . . .”); see also William W. Kellogg & Robert Schware, *Society, Science and Climate Change*, 60 FOREIGN AFF. 1076, 1078–79 (1982).

2. See Michelle S. Simon & William Pentland, *Reliable Science: Overcoming Public Doubts in the Climate Change Debate*, 37 WM. & MARY ENVTL. L. & POL’Y REV. 219, 224–31 (2012); Brad Balukjian, *Why Doesn’t Everyone Believe Humans Are Causing Climate Change?*, PBS: NOVA (Nov. 19, 2014), <https://www.pbs.org/wgbh/nova/article/climate-change-acceptance> [<https://perma.cc/N8WB-TJZU>].

“greenhouse effect” is caused by the release of greenhouse gases, most notably carbon dioxide and nitrous oxide, due to human activities.<sup>3</sup> Increased greenhouse gas emissions cause Earth’s temperature to rise, destroying habitat and increasing the scarcity of natural resources.<sup>4</sup> The largest contributor to this problem is the air pollution that results from the burning of fossil fuels.<sup>5</sup> Other by-products of fossil fuels further impact human welfare, most of which are attributable specifically to the burning of coal.<sup>6</sup> This impact extends to include major health costs.<sup>7</sup> Climate change has advanced past the point of possible complete remediation, necessitating the regulation of the costs that manifest themselves both socially and economically.

Many national governments have recognized and acted on the pressing need to address and reduce the level of air pollution emitted by the world’s industry. It falls to government to ensure that these costs are “accounted for in economic assessments to avoid making irresponsible investment choices.”<sup>8</sup> The classic way to account for negative externalities, such as air pollution, is by implementing a “corrective tax.”<sup>9</sup> Such tax imposes additional costs on the polluter, which forces the firm to internalize the cost. Ultimately, any emissions regulation is aimed at making clean air alternatives more attractive and encouraging overall energy conservation.<sup>10</sup> The best method of regulation may be disputed, but climate change is now recognized as a public and political issue, as opposed to solely a scientific issue.<sup>11</sup> Accordingly, governments began playing a bigger role in climate policy in the late 1980s.<sup>12</sup> The “transitional year” of 1988 marked the Toronto Conference and United Nations General Assembly resolution on climate change, both of which recommended that states develop their own framework to confront the dangers of global warming.<sup>13</sup> While climate policy is normally an item on the national political agenda, individual states have recently become the focus and hoped-for origin of headway on climate change policy.

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3. *E.g.*, FRANK P. INCROPERA, CLIMATE CHANGE: A WICKED PROBLEM 53 (2016) (“Since the Industrial Revolution, both the concentration of CO<sub>2</sub> and the rate at which it is increasing exceed levels experienced at any time in the previous 2 million years. The carbon cycle has become unbalanced.”); David Pearce, *The Role of Carbon Taxes in Adjusting to Global Warming*, 101 ECON. J. 938, 938 (1991).

4. *See* INCROPERA, *supra* note 3, at 78.

5. Kellogg & Schware, *supra* note 1, at 1077.

6. Coal emits higher levels of carbon dioxide than other fossil fuels. *See id.* at 1083.

7. Such health impacts include premature deaths resulting from respiratory and cardiovascular conditions caused by reduced air quality and rising healthcare costs. GLOB. COMM’N ON THE ECON. & CLIMATE, THE SUSTAINABLE INFRASTRUCTURE IMPERATIVE: FINANCING FOR BETTER GROWTH AND DEVELOPMENT 69 (2016); *see also* Donald B. Marron & Eric J. Toder, *Tax Policy Issues in Designing a Carbon Tax*, 104 AM. ECON. REV. 563 (2014).

8. *See* GLOB. COMM’N ON THE ECON. & CLIMATE, *supra* note 7, at 70.

9. David Gamage & Darien Shanske, *Using Taxes to Improve Cap and Trade, Part I: Distribution*, 75 ST. TAX NOTES 99, 100 (2015).

10. *E.g.*, Pearce, *supra* note 3, at 939.

11. *See* Daniel Bodansky, *The History of the Global Climate Change Regime*, in INTERNATIONAL RELATIONS AND GLOBAL CLIMATE CHANGE 23, 24–27 (Urs Luterbacher & Detlef F. Sprinz eds., 2001).

12. *See id.*

13. *Id.* at 25, 28.

This Note uses two recent Massachusetts carbon tax proposals to discuss the costs and benefits of such state-level climate change legislation but discusses similar regional proposals as well. Although a state carbon tax poses some limitations and concern for the increased tax burden relative to other states that have not imposed a tax, the adoption of state carbon taxes represents an important advancement in climate policy. Part I overviews legislative tactics used to combat climate change thus far, including common policy responses, and the current attitude of federal legislators toward the global climate crisis. Part II introduces the advantages and common criticisms of a carbon tax policy and concludes that a carbon tax would be an effective policy option. Next, Part III discusses recent state carbon tax proposals, focusing on the efforts of northeastern states to enact the nation's first carbon tax law. Two Massachusetts proposals, Senate Bill 1821 and House Bill 1726, are introduced to provide the basis for an analysis of state carbon taxes. Finally, Part IV discusses the possibility of effective state-level climate change policy and analyzes the costs and benefits of the Massachusetts state proposals. This Note argues that states, especially population-dense states such as Massachusetts, should adopt state-level carbon taxes to reduce their respective share of carbon emissions and supply momentum to the climate change movement.

#### I. FIGHTING THE GLOBAL CLIMATE CRISIS WITH CLIMATE LEGISLATION

This Part outlines the policies typically proposed and utilized by politicians and explains the attractiveness of these policies, most notably their status as nontax options. These policy options, albeit more readily accepted by legislatures, have a limited ability to influence consumer behavior thereby reducing greenhouse gas emissions. This Part also briefly discusses past and present U.S. climate change policy and obstacles to the passage of such legislation at the federal level, particularly carbon taxes.

##### A. Policy Options

###### 1. Cap-and-Trade Programs

Cap-and-trade programs are the preferred method of reducing greenhouse gas emissions by virtually all jurisdictions that have embraced climate change policy.<sup>14</sup> Reuven Avi-Yonah and David Uhlmann point out that the most promising proposals, both in the United States and abroad, are market-based cap-and-trade systems.<sup>15</sup> Policymakers inclined to impose a price on emissions tend to already gravitate toward nontax options, but a cap-and-trade program also fulfills the reduction goals

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14. Reuven S. Avi-Yonah & David M. Uhlmann, *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming than Cap and Trade*, 28 STAN. ENVTL. L.J. 3, 5 (2009) (discussing the popularity of cap-and-trade systems).

15. *Id.*; see also Ann E. Carlson, *Designing Effective Climate Policy: Cap-and-Trade and Complementary Policies*, 49 HARV. J. ON LEGIS. 207, 207–08, 222 (2012) (explaining how the U.S. delegation's position to the Kyoto climate negotiations was central to the popularity of cap and trade). The European Union has the most extensive cap-and-trade program to date, involving thirty member countries and covering forty percent of all EU emissions. *Id.* at 223.

of environmental advocates, introduces market incentives for industry, and complies with economic principles of efficient pricing.<sup>16</sup>

Under a cap-and-trade regime, the government determines the cap on total emissions and distributes allowances, issued via permits, equal to this total.<sup>17</sup> Businesses must then decide whether to use their allowances or sell them to another firm for market price,<sup>18</sup> however, there is a monetary incentive to reduce emissions either way.<sup>19</sup> Ann Carlson argues that cap and trade is best suited to the “temporal and spatial fungibility” of greenhouse gases.<sup>20</sup> Because the negative externalities are not concentrated to the time and location at which they were emitted, firms can “bank[] and borrow[]” allowances in the most cost-effective way.<sup>21</sup> In another vein, cap-and-trade systems are politically appealing to both legislators and businesses because the allowances of such programs function as “legislatively created wealth.”<sup>22</sup> The ability to shape cap-and-trade programs to “create winners and losers” makes it easier to gain political support, thus pushing it to a vote.<sup>23</sup>

On the other hand, despite the ability to influence behavior to reduce emissions, cap-and-trade systems present additional administrative burdens. For instance, there is an inherent difficulty in setting emission-reduction targets. Regulators must also implement oversight mechanisms to monitor emissions and allowance trades between firms.<sup>24</sup> This proves to be exceedingly difficult because these exchanges “can take on layers of complexity that are susceptible to speculation and volatility.”<sup>25</sup> These allowance trades also challenge the level of price certainty any cap-and-trade program is able to guarantee, making the cost of emission reductions somewhat unpredictable.<sup>26</sup> Furthermore, consumers still bear the ultimate cost of pricing carbon through cap and trade. Taking California’s cap-and-trade regime, AB 32, for instance, any reduction in greenhouse gas emissions would cause a corresponding increase in gasoline, electricity, and industrial product prices.<sup>27</sup>

While cap-and-trade programs are currently the preferred approach by many national and subnational governments across the globe, a superior cap-and-trade

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16. Avi-Yonah & Uhlmann, *supra* note 14.

17. LEONARD E. BURMAN & JOEL SLEMROD, *TAXES IN AMERICA: WHAT EVERYONE NEEDS TO KNOW* 13 (2013).

18. Lawrence H. Goulder & Andrew Schein, *Carbon Taxes vs. Cap and Trade: A Critical Review* 5 (Nat’l Bureau of Econ. Research, Working Paper No. 19338, 2013), <http://www.nber.org/papers/w19338.pdf> [<https://perma.cc/FGR3-HTC2>]; *see also* Carlson, *supra* note 15, at 209.

19. BURMAN & SLEMROD, *supra* note 17, at 13–14 (“If . . . the implicit tax due to the market price of the permits, is equal to the social cost of the polluting activity, then decision-makers are induced to take heed of the social cost of their actions.”).

20. Carlson, *supra* note 15, at 216.

21. *Id.* at 215–16.

22. SHI-LING HSU, *THE CASE FOR A CARBON TAX: GETTING PAST OUR HANG-UPS TO EFFECTIVE CLIMATE POLICY* 121 (2011).

23. *Id.*

24. Goulder & Schein, *supra* note 18, at 12.

25. INCROPERA, *supra* note 3, at 149.

26. Avi-Yonah & Uhlmann, *supra* note 14, at 6.

27. Gamage & Shanske, *supra* note 9, at 100–01.

design would include “tax elements.”<sup>28</sup> Mark Gergen, a proponent of state-level legislation, has argued that a carbon tax should supplement a cap-and-trade program.<sup>29</sup> He proposes using two separate taxes to set the maximum and minimum prices of allowances in a cap-and-trade system, a method he calls “wrapping a carbon tax around cap and trade.”<sup>30</sup> Requiring firms to purchase permits, rather than freely distributing them, increases efficiency because firms will only acquire the necessary number of allowances and no more. Firms must use their limited number of credits to obtain allowances or otherwise pay a tax determined by the “wrap around” carbon taxes. Crafty businesses will sort out the optimal configuration of redeeming credits, but the incentive to use as few as possible is constant. Other commentators agree and argue that it is easier to make the case for a more flexible hybrid cap-and-trade policy that regulates permit prices with either a carbon price floor or ceiling (or both).<sup>31</sup>

## 2. Command-and-Control Regulations

Through command-and-control regulations, the government mandates that firms adopt a certain “pollution abatement technology” or sets a range of energy choices for each source of greenhouse gas emissions.<sup>32</sup> These regulations may take the form of renewable portfolio standards for power production, automobile-efficiency standards, or other standards for buildings and appliances.<sup>33</sup> For instance, corporate average fuel economy (CAFE) standards set efficiency standards for automobiles,<sup>34</sup> a larger source of emissions than the nation’s power plants.<sup>35</sup> This regulatory approach provides lawmakers with additional nontax alternatives and is preferred by those who would rather not guess as to the optimal quantity of greenhouse gases given the economic cost of reducing the emissions.<sup>36</sup>

The structure of command-and-control systems, while seemingly simple, limits the potential reduction in greenhouse gas emissions that might otherwise be achievable under a different policy option. These regulations provide polluters with

28. *Id.* at 99 (arguing that tax elements would make the California cap-and-trade regime fairer to disadvantaged populations and mitigate negative effects on economic growth).

29. Mark P. Gergen, *The Case in Economic Theory for Wrapping a Carbon Tax Around Cap and Trade* 2, 9–10 (Aug. 27, 2013) (unpublished manuscript on file with the *Indiana Law Journal*).

30. *Id.* at 2.

31. Goulder & Schein, *supra* note 18, at 3; Luca Taschini, Simon Dietz & Naomi Hicks, Grantham Research Inst. on Climate Change and the Env’t, *Carbon Tax v Cap-and-Trade: Which Is Better?*, *GUARDIAN* (Jan. 31, 2013, 8:59 AM), <https://www.theguardian.com/environment/2013/jan/31/carbon-tax-cap-and-trade> [<https://perma.cc/65C4-UEHR>].

32. Gary M. Lucas, Jr., *Behavioral Public Choice and the Carbon Tax*, 2017 *UTAH L. REV.* 115, 127.

33. See ROGER C. DOWER & MARY BETH ZIMMERMAN, *WORLD RES. INST., THE RIGHT CLIMATE FOR CARBON TAXES: CREATING ECONOMIC INCENTIVES TO PROTECT THE ATMOSPHERE* 1, 4 (1992); INCROPERA, *supra* note 3, at 148.

34. INCROPERA, *supra* note 3, at 148.

35. Hiroko Tabuchi, *U.S. Climate Change Policy: Made in California*, *N.Y. TIMES* (Sept. 27, 2017), <https://www.nytimes.com/2017/09/27/climate/california-climate-change.html> [<https://perma.cc/A9VK-6C69>].

36. Gamage & Shanske, *supra* note 9, at 100.

no incentive to seek alternative, cheaper ways to reduce a particular source's carbon emissions past the required standard.<sup>37</sup> Instead of continuing to innovate and search for more efficient technologies or production methods, these regulations encourage polluters to sit on their hands once reaching the minimum requirement.

The administrative burden of implementing and managing a command-and-control regime is also quite large. The government must identify the most inexpensive ways to limit each source of carbon emissions. This requires massive amounts of information that the government would have to collect anew.<sup>38</sup> The government would also be responsible for establishing a system to monitor each source's ability to comply with these requirements.<sup>39</sup> Lastly, command-and-control regulations are regressive in that the ultimate cost is passed down to consumers in the form of higher prices for goods and services.<sup>40</sup> For example, emissions standards increase the price of cheaper vehicles, which are more likely to be purchased by low-income households, by the same amount as more expensive vehicles.<sup>41</sup> These regulations, unlike carbon taxes, cannot self-correct because they generate no revenue.<sup>42</sup>

### 3. Other Government Regulations and Subsidies

Governments have also used subsidy programs to reduce greenhouse gas emissions by incentivizing investment in low-carbon technologies and eco-friendly goods.<sup>43</sup> Congress has used tax credits, deductions, and shorter depreciation recovery periods to encourage investment in alternative energy sources.<sup>44</sup> Specific examples include "the income tax credit for hybrid cars and subsidies for corn-based ethanol, the hydrogen fuel cell, and carbon sequestration technology."<sup>45</sup> Although the public highly favors subsidy programs as a climate change policy, some scholars believe that they should not be more than a supplementary component of any government's climate policy.<sup>46</sup> Nevertheless, green subsidies may stimulate technological advancement and produce positive externalities in the form of reduced cost for some.<sup>47</sup>

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37. Lucas, *supra* note 32, at 127–28; *see also* DOWER & ZIMMERMAN, *supra* note 33, at 4.

38. Lucas, *supra* note 32, at 127.

39. DOWER & ZIMMERMAN, *supra* note 33, at 4.

40. Lucas, *supra* note 32, at 128.

41. IAN W.H. PARRY, HILARY SIGMAN, MARGARET WALLS & ROBERTON C. WILLIAMS III, RES. FOR THE FUTURE, THE INCIDENCE OF POLLUTION CONTROL POLICIES 16–17 (2005); *see also* Lucas, *supra* note 32, at 128.

42. Lucas, *supra* note 32, at 128.

43. *Id.* at 129.

44. Kathryn Kisska-Schulze & Darren A. Prum, *States Taxing Carbon: Proposing Flexibility and Harmonization in the Movement Toward Environmental Reform in the U.S.*, 40 ENVIRONS ENVTL. L. & POL'Y J. 87, 102–03 (2017).

45. Lucas, *supra* note 32, at 129.

46. "[N]ot even the love-starved, benefit-distributing US Congress would take the extreme position of relying *only* on subsidization as a climate policy." Hsu, *supra* note 22, at 121 (emphasis in original).

47. Michael Waggoner, *Why and How to Tax Carbon*, 20 COLO. J. INT'L ENVTL. L. & POL'Y 1, 32 (2008).

On the other hand, subsidy programs pose significant economic efficiency issues. As with command-and-control regulations, governments must rely on large amounts of information that they do not readily possess to determine the activities that should be subsidized.<sup>48</sup> Furthermore, the sheer political attractiveness of subsidies functions as a barrier to fulfilling the environmental objectives of such a policy.<sup>49</sup> Subsidies attract the attention of special interests, causing the environmental considerations of the program to be dwarfed by the objectives of self-interested lobbyists. Even more fundamental, green subsidies are extremely expensive to sustain.<sup>50</sup> The combination of high cost and possibility of negligible emission reductions makes subsidy programs a less effective policy option both economically and environmentally.

### *B. United States Policy Toward Climate Change*

Many economists and policymakers believe that successfully addressing global climate change must come from the international community as a whole,<sup>51</sup> but this has not dissuaded national or even subnational legislative bodies from enacting climate change legislation. Throughout the twentieth century, U.S. energy and tax policy has moved between encouraging energy conservation and favoring big oil and gas.<sup>52</sup> Nevertheless, the federal government has been active in climate policy for the last few decades (with the exception of the Reagan administration), enacting several excise taxes on fossil fuels and introducing tax credits for renewable energy.<sup>53</sup> More recently, the Obama administration unsuccessfully attempted to get Congress to adopt comprehensive climate change legislation, but nonetheless took steps to commit the United States to more environmentally friendly policies.<sup>54</sup>

Through the course of his 2016 presidential campaign, Donald Trump promised the repeal of many policies set by President Obama.<sup>55</sup> This included climate policy, specifically aid to the United Nations Green Climate Fund and the Clean Power

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48. Lucas, *supra* note 32, at 129; *see also* Kisska-Schulze & Prum, *supra* note 44, at 103.

49. *See* Lucas, *supra* note 32, at 129.

50. *Id.*

51. *E.g.*, HSU, *supra* note 22, at 2, 5; Lucas, *supra* note 32, at 124 (“Climate change is a global problem and addressing it will require global cooperation.”); Emily Richman, Note, *Emissions Trading and the Development Critique: Exposing the Threat to Developing Countries*, 36 N.Y.U. J. INT’L L. & POL. 133, 133 (2003) (“A number of economists and legal thinkers have asserted that an international emissions trading scheme is the most efficient way to reduce the carbon emissions that cause climate change.”); *see also supra* text accompanying notes 20–21.

52. Kisska-Schulze & Prum, *supra* note 44, at 101.

53. *Id.* at 101–02 (“One legal scholar asserts that the United States’ approach to use tax policy as a pollution-reducing tool made it the world’s leader at the time.”).

54. *Id.* at 103; *see infra* note 60 and accompanying text.

55. *See Trump Promise Tracker*, WASH. POST, [https://www.washingtonpost.com/graphics/politics/trump-promise-tracker/?utm\\_term=.b46ebb4732dc](https://www.washingtonpost.com/graphics/politics/trump-promise-tracker/?utm_term=.b46ebb4732dc) [https://perma.cc/E5KB-E3M9] (last updated Sept. 17, 2018).

Plan,<sup>56</sup> which set limits on carbon emissions for each state's power plants.<sup>57</sup> President Donald Trump honored these campaign promises and began unwinding federal involvement in climate change policy. Specific changes included rolling back programs on vehicle fuel efficiency standards and groundwater protections and proposing major budget cuts to the Environmental Protection Agency (EPA).<sup>58</sup> President Trump has also filled many positions that exert influence over the direction of U.S. climate policy with vocal climate change skeptics, most notably Administrator of the EPA.<sup>59</sup> In June 2017, the Trump administration pulled the United States out of the Paris Agreement, a global coalition assembled to reduce greenhouse gas emissions.<sup>60</sup> This trend of opposition to federal climate change action is mirrored by the legislature. For each effort to enact a federal carbon tax, "there ha[s] been equal and parallel legislative endeavors to . . . curb climate action."<sup>61</sup>

The enactment of federal carbon taxes in particular faces certain political difficulties, both directly from political opponents and indirectly from the biases of voters. The coal and electricity industries' political influence effectively serves as a veto against any carbon tax proposal.<sup>62</sup> On the voter side, there is a perception that

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56. Ali Vitali, *Trump Pulls U.S. Out of Paris Climate Agreement*, NBC NEWS (June 1, 2017, 8:47 PM), <https://www.nbcnews.com/politics/white-house/trump-pulls-u-s-out-paris-climate-agreement-n767066> [<https://perma.cc/CP27-DDXN>]; see also Rebecca Harrington, *President-Elect Donald Trump Doesn't Believe in Climate Change. Here's His Platform on the Environment*, BUS. INSIDER (Nov. 9, 2016, 10:44 AM), <http://www.businessinsider.com/donald-trump-climate-change-global-warming-environment-policies-plans-platforms-2016-10> [<https://perma.cc/JEE4-Y2KJ>].

57. Lucas, *supra* note 32, at 118.

58. Rebecca Gasper, *Timeline: Trump's 100 Days of Rollbacks to Climate Action*, WORLD RESOURCES INST. (Apr. 26, 2017), <http://www.wri.org/blog/2017/04/timeline-trumps-100-days-rollbacks-climate-action> [<https://perma.cc/2WAF-WRXL>].

59. Shi-Ling Hsu, *A Complete Analysis of Carbon Taxation: Considering the Revenue Side*, 65 BUFFALO L. REV. 857, 858 (2017). In July 2018, Scott Pruitt, Administrator of the EPA, resigned amid allegations of legal and ethical scandal. Coral Davenport, Lisa Friedman & Maggie Haberman, *E.P.A. Chief Scott Pruitt Resigns Under a Cloud of Ethics Scandals*, N.Y. TIMES (July 5, 2018), <https://www.nytimes.com/2018/07/05/climate/scott-pruitt-epa-trump.html> [<https://perma.cc/9M3X-GBR3>].

60. Hsu, *supra* note 59, at 858–59. President Barack Obama had previously committed the United States to lowering its emissions by twenty-six to twenty-eight percent. THE WHITE HOUSE, PRESIDENT OBAMA'S CLIMATE ACTION PLAN 2 (2015), [https://obamawhitehouse.archives.gov/sites/default/files/docs/cap\\_progress\\_report\\_final\\_w\\_cover.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/cap_progress_report_final_w_cover.pdf) [<https://perma.cc/5SRQ-B6JP>]; see also Chelsea Harvey, *Defying Trump, These State Leaders Are Trying to Impose Their Own Carbon Taxes*, WASH. POST (May 12, 2017), [https://www.washingtonpost.com/news/energy-environment/wp/2017/05/12/defying-trump-these-state-leaders-are-trying-to-impose-their-own-carbon-taxes/?utm\\_term=.063039c452b8](https://www.washingtonpost.com/news/energy-environment/wp/2017/05/12/defying-trump-these-state-leaders-are-trying-to-impose-their-own-carbon-taxes/?utm_term=.063039c452b8) [<https://perma.cc/4RXD-VMP9>].

61. Kisska-Schulze & Prum, *supra* note 44, at 104 ("Initiatives include the *No Carbon Tax Act of 2013* . . . and the *American Energy Renaissance Act of 2015*, which proposes to amend the Clean Air Act to exclude GHGs from the definition of 'air pollutant' and to repeal current rulemaking for carbon pollution standards for power plants.")

62. Hsu, *supra* note 22, at 120 ("While coal-heavy states such as West Virginia have exerted pressure through their elected representatives, electricity-generating firms have worked through one of the most powerful trade associations in the world, the Edison Electric

energy usage is inelastic, which would make adjusting to a carbon tax nearly impossible for low-income consumers' budgets.<sup>63</sup> Politicians have manipulated this perception to advocate against such a tax.<sup>64</sup> There is also a perception of unequal distribution across states, which hampers the political feasibility of carbon pricing.<sup>65</sup> These challenges persist even though several Republican officials have expressed a preference for a carbon tax over other alternatives.<sup>66</sup>

## II. CARBON TAXES—THE BEST POLICY?

This Part focuses on the carbon tax as a climate change policy option. While the previously discussed policies present certain limitations, a tax option would eliminate efficiency and implementation concerns and allow for a broader societal and environmental impact. The discussion covers four main aspects of the carbon tax: superior economic efficiency, generation of revenue, regressiveness, and practicality. The Part concludes that a carbon tax would be the most efficient climate change policy option with the greatest positive environmental outcomes.

### A. Economic Efficiency

The U.S. Congressional Budget Office (CBO) determined a carbon tax to be the most efficient among options for reducing carbon dioxide emissions.<sup>67</sup> Most economists agree that an optimal carbon tax, set as the marginal social cost of emitting carbon, would create the most economically efficient reduction in activities that produce carbon emissions.<sup>68</sup> Ideally, the tax would be collected far upstream and applied to a limited number of firms at the point the fossil fuel enters the economy, such as the coal mine head, oil refinery, or wellhead.<sup>69</sup> After initial implementation hurdles,<sup>70</sup> focus on applying the tax to the gatekeepers of the stream of commerce would allow the tax to be administered more simply.<sup>71</sup> It would also create a broad

Institute . . .”).

63. *Id.* at 125–26.

64. *Id.* (debunking this argument against carbon taxes and asserting that low-income individuals and households are able to find ways to substitute energy sources).

65. Robertson C. Williams III, Hal Gordon, Dallas Burtraw, Jared C. Carbone & Richard D. Morgenstern, *The Initial Incidence of a Carbon Tax Across U.S. States*, 67 NAT'L TAX J. 807, 807–08 (2014).

66. Carbon tax options have also garnered support from prominent business leaders. Hsu, *supra* note 59, at 860–61.

67. CONG. BUDGET OFFICE, POLICY OPTIONS FOR REDUCING CO<sub>2</sub> EMISSIONS, at viii (2008), <https://www.cbo.gov/sites/default/files/110th-congress-2007-2008/reports/02-12-carbon.pdf> [<https://perma.cc/MF52-KXWD>].

68. The optimal carbon tax can be determined through forecasts of damage caused by global warming. Lucas, *supra* note 32, at 122; *see also* Marron & Toder, *supra* note 7, at 563.

69. INCROPERA, *supra* note 3, at 155.

70. *See infra* Section II.D.

71. “[C]ollecting the tax upstream would make it possible to accurately and cheaply cover 80% of U.S. emissions by collecting the tax at fewer than 3000 points . . .” Gilbert E. Metcalf & David Weisbach, *The Design of a Carbon Tax*, 33 HARV. ENVTL. L. REV. 499, 501 (2009). The gatekeepers, as the subject of the carbon tax, will adjust the price of their products and

tax base with influence over each subsequent choice made by producers and consumers. Polluters will adapt to use production methods that emit less carbon or else pay the tax. Additionally, because the burning of fossil fuels will be taxed in proportion to the carbon emitted, the consumption of coal, the largest emitter, will be taxed most heavily, resulting in a reduction of not only carbon but also sulfur and nitrogen oxides.<sup>72</sup>

Even when compared with a flexible cap-and-trade system, carbon taxes provide more of a constant incentive to reduce emissions until they are eliminated.<sup>73</sup> This incentive exists even if the cost of cutting emissions is higher or lower than the expected cost.<sup>74</sup> For example, an emissions cap would fail to incentivize firms to further reduce emissions where new technology made it much cheaper to make their reductions.<sup>75</sup> But a carbon tax would supply an incentive as long as reduction costs less than paying the tax. A steadily increasing carbon tax would “eliminate fluctuations in the cost of emissions and allow both producers and consumers of energy to more confidently determine when and to what extent emissions should be reduced.”<sup>76</sup> Carbon taxes provide another advantage that is left unresolved by cap-and-trade systems: price certainty. A carbon tax is fixed as a percentage of output until further changed by the government.<sup>77</sup> This price certainty allows energy producers to make smart long-term investment decisions and reduces the risk of such investments.

### B. Revenue

The revenue produced by a carbon tax is a major policy advantage that allows for much broader economic and social impacts. Carbon taxes can either be revenue positive or revenue neutral. There is debate about which mode is preferred,<sup>78</sup> but each design nevertheless presents revenue possibilities that other methods of climate regulation do not. The revenue generated by a carbon tax allows for several viable spending possibilities. For example, a revenue-neutral carbon tax can counteract its regressive nature by redistributing the revenue in the form of a rebate check, reduction in income or payroll taxes, or increase in the earned income tax credit.<sup>79</sup> In

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services to account for the increased burden and pass on the cost to subsequent actors in the production and consumption process. *See id.*

72. Amy C. Christian, *Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)*, 10 *ULCA J. ENVTL. L. & POL'Y* 221, 232 (1992).

73. This incentive exists “as long as the marginal cost of abatement is less than the tax.” Lucas, *supra* note 32, at 128.

74. CONG. BUDGET OFFICE, *supra* note 67, at 4.

75. *Id.*

76. INCROPERA, *supra* note 3, at 154.

77. Yoram Margalioth, *Tax Policy Analysis of Climate Change*, 64 *TAX L. REV.* 63, 83 (2010).

78. Michelle Chen, *How the States Can Still Fight Climate Change—Without the Federal Government*, *NATION* (June 2, 2017), <https://www.thenation.com/article/states-can-still-fight-climate-change-without-federal-government> [<https://perma.cc/76NY-ZGEY>]; *see also* Avi-Yonah & Uhlmann, *supra* note 14, at 32.

79. INCROPERA, *supra* note 3, at 151; Lucas, *supra* note 32, at 123–24; *see also infra* Section II.C. Although rebates are politically attractive, they impose large costs. Lucas, *supra*

these ways, the revenue can be used to maintain the desired level of overall progressivity within the tax system. However, there is a tradeoff to utilizing the revenue in such ways. Options most valuable to low-income taxpayers are much less amenable to economic efficiency concerns because they do nothing to correct for the “distortive effects of existing taxes.”<sup>80</sup> The CBO corroborates this sentiment and asserts that some uses, such as reducing the deficit or cutting marginal tax rates, can offset the economic costs while others, such as compensating groups adversely affected by the tax, would not.<sup>81</sup> On the other hand, economists believe that a revenue-generating carbon tax is able to offset the burden it places on low-income taxpayers and provide revenue for other purposes.<sup>82</sup> Other potential uses of carbon tax revenue include funding research and development to aid transition into a low-carbon economy.<sup>83</sup>

Shi-Ling Hsu distinguishes between these options and argues that carbon tax revenues are more than just economic.<sup>84</sup> The choice over how to utilize the revenue carries heavy social and political considerations as well. Some spending options benefit the wealthy and others benefit low- and moderate-income households.<sup>85</sup> Options such as reducing the personal or corporate income tax, for instance, are more favorable to higher-income individuals because these taxpayers account for a larger proportion of income tax revenue.<sup>86</sup> Reducing payroll or consumption taxes or issuing lump sum rebates would directly aid low-income consumers.<sup>87</sup> For this reason, carbon tax revenue presents more of a struggle of competing values than other taxes. Carbon tax advocates are forced to favor one group of taxpayers at the expense of another regardless of whether they are advancing a revenue-neutral or revenue-positive design. Simply choosing to direct revenue to the general treasury might be enough to lose whatever popular support a carbon tax proposal may have.

### C. Regressiveness

Carbon taxes increase the cost of fossil fuels to account for the social costs of burning such fuels. This encourages energy conservation and the use of clean energy alternatives that emit less negative environmental effects, however, there is a downside. Any upward movement in energy prices caused by adding the social costs to the price of fossil fuels has a larger negative impact on low- and middle-income households. This is because low-income individuals and households devote a larger fraction of their budget to energy costs than high-income households.<sup>88</sup> Since low

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note 32, at 124 n.36.

80. Marron & Toder, *supra* note 7, at 566.

81. CONG. BUDGET OFFICE, EFFECTS OF A CARBON TAX ON THE ECONOMY AND THE ENVIRONMENT 2 (2013), [https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44223\\_Carbon\\_0.pdf](https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44223_Carbon_0.pdf) [<https://perma.cc/M9RP-KXE4>].

82. Lucas, *supra* note 32, at 124; *see also infra* Section II.C.

83. Lucas, *supra* note 32, at 146.

84. Hsu, *supra* note 59, at 875.

85. *Id.* at 880–81.

86. *Id.* at 875–76, 880–81.

87. *Id.* at 877–78.

88. *See* KATHERINE S. NEWMAN & ROURKE L. O'BRIEN, TAXING THE POOR: DOING

energy prices are most beneficial to low-income consumers, low- and moderate-income households will feel most of the tax burden under any carbon tax or trading system.<sup>89</sup> Using data from 2003, Gilbert Metcalf and David Weisbach estimate that a carbon tax would constitute 0.81% of the top decile's annual income but 3.74% of the bottom decile's income.<sup>90</sup> The carbon tax is most widely criticized for this modest to high regressiveness.<sup>91</sup>

It is possible that the regressiveness of a carbon tax is not as extensive as opponents assert and whatever level of regressiveness that does exist can be corrected for through the use of supplementary policies. First, the level of regressiveness varies depending on the measure of the tax burden used. Studies that examine energy costs as a proportion of income show more dramatic effects on the poor than studies that use an expenditure measure of incidence.<sup>92</sup> In their 2009 study, Kevin Hassett et al. find that the burden on the bottom decile is 3.74% when measured as a proportion of annual income but 1.16% of lifetime consumption.<sup>93</sup> They suspect that this is partly caused by "transitory income shocks" that "exacerbate the apparent regressivity" when using the annual income measure.<sup>94</sup> This makes carbon taxes appear more regressive. Even though energy taxes cannot be deemed progressive, they place less of a burden on the poor and middle class than much of the opposing rhetoric would indicate.<sup>95</sup>

While the regressive quality of carbon taxes is real, no matter the disagreement over its extent, there are measures available to counteract the unequal distribution of negative side effects. As previously discussed, this may take the form of a rebate, reduction in income taxes, or increased tax credit.<sup>96</sup> According to Metcalf and Weisbach, this should take the form of adjustments to the tax system itself rather than adjustments to the design of the carbon tax.<sup>97</sup> Otherwise, the environmental

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DAMAGE TO THE TRULY DISADVANTAGED 62 (2011). The subject of Newman and O'Brien's study reported that she would not be able to afford an increase in her energy bill of just thirty dollars. *Id.*

89. Hsu, *supra* note 22, at 124; Tracey M. Roberts, *Mitigating the Distributional Impacts of Climate Change Policy*, 67 WASH. & LEE L. REV. 209, 236, 239 (2010) ("The Center on Budget and Policy Priorities estimates that the households in the lowest income quintile will face approximately \$700 per year in increased costs from climate change legislation that reduces emissions by fifteen percent below projected levels.").

90. Metcalf & Weisbach, *supra* note 71, at 513.

91. *Id.*

92. Kevin A. Hassett, Aparna Mathur & Gilbert E. Metcalf, *The Incidence of a U.S. Carbon Tax: A Lifetime and Regional Analysis*, 30 ENERGY J. 155, 156 (2009); James M. Poterba, *Tax Policy to Combat Global Warming: On Designing a Carbon Tax 7-9* (Nat'l Bureau of Econ. Research, Working Paper No. 3649, 1991) (analyzing data produced by the 1985 U.S. Consumer Expenditure Survey).

93. Hassett et al., *supra* note 92, at 162-65.

94. *Id.* at 165.

95. DOWER & ZIMMERMAN, *supra* note 33, at 22.

96. *See supra* note 79 and accompanying text.

97. Metcalf & Weisbach, *supra* note 71, at 513-14 (recommending adjustments to the income tax); *see also supra* notes 85-87 and accompanying text.

incentives of the carbon tax become distorted because the carbon emissions would no longer be priced equal to the marginal damages.<sup>98</sup>

#### *D. Practicality of Implementation*

A carbon tax is the easiest climate policy option to implement and adjust.<sup>99</sup> The tax can be applied to a relatively small number of producers, which makes administration easier to streamline.<sup>100</sup> It is also more stable once implemented and less prone to political manipulation.<sup>101</sup> However, there are initial administrative hurdles that come with implementing the tax. First, the most socially and economically efficient price is difficult to determine. The classic definition of a carbon tax calls for a price equal to the marginal social cost,<sup>102</sup> the estimation of which is “complex, varied, and controversial.”<sup>103</sup> In a 2013 survey, the mean social cost of carbon was determined to be \$196 per ton with a standard deviation of \$322.<sup>104</sup> But even though the exact carbon emissions of each source are difficult to measure, the “volume and carbon content of fossil fuels burned” can serve as a substitute.<sup>105</sup> Furthermore, even a modest carbon tax can send the “right *kind* of price signals” without the stress of determining the most optimal price.<sup>106</sup>

### III. NORTHEASTERN STATE CARBON TAX PROPOSALS

The current direction of federal climate policy gives state and regional proposals backing and possibility for success. Legislators in five northeastern states have introduced bills to reduce greenhouse gas emissions through the use of a carbon tax or fee.<sup>107</sup> The public opinions and political conditions of the northeastern United States provide a strong basis for such proposals: the evidence of climate change is widely accepted, states have adopted clean energy regulations, and states must import fossil fuels.<sup>108</sup> The northeastern states already participate in the Regional Greenhouse Gas Initiative (RGGI), a regional cap-and-trade program that regulates the electricity sector.<sup>109</sup> A carbon tax would help these states reach their emission reduction goals.

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98. Metcalf & Weisbach, *supra* note 71, at 513.

99. Avi-Yonah & Uhlmann, *supra* note 14, at 7.

100. INCROPERA, *supra* note 3, at 155.

101. *Id.*

102. *See supra* note 68 and accompanying text.

103. HSU, *supra* note 22, at 28; *see also* Marron & Toder, *supra* note 7, at 563.

104. Marron & Toder, *supra* note 7, at 563.

105. Christian, *supra* note 72, at 235–36.

106. HSU, *supra* note 22, at 29 (emphasis in original).

107. Such states include Massachusetts, Rhode Island, Connecticut, Vermont, and Washington. Harvey, *supra* note 60. Voters in other states have argued for carbon-pricing ballot measures. Chen, *supra* note 78.

108. Jan Ellen Spiegel, *Northeastern States Moving on Carbon Pricing*, YALE CLIMATE CONNECTIONS (June 13, 2017), <https://www.yaleclimateconnections.org/2017/06/northeastern-states-moving-on-carbon-pricing> [<https://perma.cc/UE3B-JZ5K>].

109. *Id.*; Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, 10 VT. J. ENVTL. L. 1, 26 (2008).

The various carbon tax proposals diverge in important respects, including how to use revenue, prices, and gradual price increases. For example, Vermont and Massachusetts's proposals both start at \$10 per ton, but Vermont's tax would increase up to \$100 while Massachusetts's tax would only reach \$40.<sup>110</sup> Different standards of living is one explanation for the price discrepancies, yet there are concerns of increased competition among states. Nevertheless, the proposals would be significant if adopted. This is especially true of the Massachusetts proposals because the Rhode Island and Connecticut bills are contingent upon a carbon tax being passed in Massachusetts.<sup>111</sup>

#### A. Massachusetts Carbon Tax Proposals

Two carbon tax proposals have been introduced in the Massachusetts state legislature, one in the House and one in the Senate. If either bill is adopted, Massachusetts will become home to the first carbon tax in the United States. The northeastern United States generally presents a promising location to propose the nation's first carbon tax, but Massachusetts in particular harbors a hospitable social and political environment for such legislation because the state leads the country both "in energy efficiency and the size of its clean tech economy."<sup>112</sup> A state tax might also be favored because it would help the Commonwealth achieve its target reduction in emissions set by the Global Warming Solutions Act.<sup>113</sup> The proposals will be introduced separately and their differences highlighted.

##### 1. Senate Bill 1821

In early 2017, Massachusetts State Senator Michael Barrett introduced his third carbon-pricing bill since 2013, Senate Bill 1821 "An Act Combating Climate Change" ("S.1821").<sup>114</sup> The bill proposes a carbon tax of ten dollars per ton, rising annually by five dollars until it reaches forty dollars.<sup>115</sup> The bill is a revenue-neutral carbon tax proposal.<sup>116</sup> The revenue, estimated to be between \$350 and \$400 million in the first year of the tax,<sup>117</sup> is to be deposited into a "greenhouse gas emissions charges rebate fund."<sup>118</sup> It would cover "reasonable administrative costs" associated

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110. New York's proposal would start at \$35 and increase in increments of \$15 until it reaches \$185. Spiegel, *supra* note 108.

111. The bills contain language that makes passage dependent on whether the Massachusetts bill goes into effect. Harvey, *supra* note 60.

112. Mary Gable, *With Two New Bills, Massachusetts Moves on Carbon Pricing*, CITIZENS' CLIMATE LOBBY (Feb. 8, 2017), <https://citizensclimatelobby.org/two-new-bills-massachusetts-moves-carbon-pricing> [<https://perma.cc/ZK75-NEJV>].

113. *Carbon Pricing*, U.S. GREEN BUILDING COUNCIL MASS. CHAPTER, <https://usgbcma.org/advocacy-committee/carbon-pricing> [<https://perma.cc/RU5M-D8KL>].

114. S. 1821, 190th Gen. Court, 1st Ann. Sess. (Mass. 2017), <https://malegislature.gov/Bills/190/S1821> [<https://perma.cc/QW45-2PQB>].

115. *Id.*

116. *See id.*

117. *Carbon Pricing*, *supra* note 113.

118. Mass. S. 1821.

with the tax, with the rest being returned to households and businesses to minimize the economic impacts.<sup>119</sup> Residents would receive an equal rebate, but residents of rural areas would receive additional compensation in the form of a “motor vehicle fuel rebate” due to high transportation costs and lack of available substitutes.<sup>120</sup> Employers would be entitled to rebates based on their proportional share of statewide employment, which is reassessed annually.<sup>121</sup> This encourages businesses to employ more full-time employees, as a greater company workforce will ensure a greater return.<sup>122</sup>

Economists in support of this bill argue that this approach is cost effective. This was reflected in the testimony of Professors of Economics Gilbert Metcalf and Christopher Knittel given before the Joint Committee of Telecommunications, Utilities and Energy (“Joint Committee”) at the public hearing held on June 20, 2017.<sup>123</sup> The proposal provides a strong incentive to reduce consumption and allows consumers discretion in deciding how to adjust to the tax. The proposed carbon tax would also help the state continue compliance with RGGI and reach its target reduction goals. After the sixth year of the tax, House and Senate committees would assess whether any accommodations are to be made to the charges.<sup>124</sup>

## 2. House Bill 1726

Representative Jennifer Benson sponsored House Bill 1726 entitled “An Act to Promote Green Infrastructure, Reduce Greenhouse Gas Emissions, and Create Jobs” (“H.1726”).<sup>125</sup> This bill proposes a carbon tax starting at twenty dollars per ton of carbon emissions, increasing by five dollars until the rate is forty dollars.<sup>126</sup> H.1726 is a revenue-positive proposal.<sup>127</sup> Eighty percent of the revenue is to be returned to households and employers through rebates.<sup>128</sup> The remaining revenue would fund a Green Infrastructure Fund (GIF) to “support investments in transportation, resiliency and clean energy projects . . . prepare for climate change impacts, assist low-income households and renters in reducing their energy costs, and create local economic development and employment.”<sup>129</sup> Eighty-five percent of GIF funds would be distributed to municipalities to accomplish three prescribed purposes.<sup>130</sup> The plan

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119. *Id.*

120. *Id.*

121. *Id.*

122. *See id.*

123. *Carbon Pricing and Utilities: Hearing Before the J. Comm. on Telecomms., Utils. & Energy*, 190TH GEN. CT. COMMONWEALTH MASS. (June 20, 2017), <https://malegislature.gov/Events/Hearings/Detail/2664/Video1> [<https://perma.cc/9UKH-YWBU>]. Gilbert Metcalf has written extensively on what he considers to be an optimal carbon tax design. Metcalf & Weisbach, *supra* note 71.

124. Mass. S. 1821.

125. H. 1726, 190th Gen. Court, 1st Ann. Sess. (Mass. 2017), <https://malegislature.gov/Bills/190/H1726> [<https://perma.cc/8UBS-QQ3T>].

126. *Id.*

127. *See id.*

128. *Id.*

129. *Id.*

130. *Id.* These purposes include the following: “(i) Reduce greenhouse gas emissions from

would allocate one-third of GIF funds to areas with income levels in the lowest third of the statewide median income.<sup>131</sup>

H.1726 was discussed by the Joint Committee at its June 2017 public hearing. Representative Jennifer Benson defended her revenue-positive bill and argued that consumers who emit less carbon would receive a greater rebate, thus shaping behaviors.<sup>132</sup> The green fund would be able to finance new energy projects and support collaboration among towns and municipalities.<sup>133</sup> Other supporters present at the hearing claimed that H.1726 is even attractive to rural constituents; there is a thirty percent premium for residents who do not have alternative transportation.<sup>134</sup>

#### IV. CAN STATE-LEVEL CARBON TAXES WORK?

The interaction of state and federal regulations presents challenges to effective climate policy. For one, states have generally followed the lead of the federal government and used the federal tax system to shape their own tax structures.<sup>135</sup> Although these similarities allow substantial benefits to states in terms of compliance and administrative costs, federal policy “interfere[s] directly with states’ taxing authority” and creates “spillover effects” into state policy possibilities.<sup>136</sup> For example, states originally took the lead on environmental issues, but this changed with the National Environmental Policy Act of 1969.<sup>137</sup> However, it is still possible for innovative state climate policies to influence future federal action.<sup>138</sup> Considering the likelihood that both federal and state legislatures will continue to regulate this area, unilateral state policy has the potential to influence the national climate change policy agenda.

In response to the federal government’s disfavor of proactive climate policy, “grim news of rising temperatures, collapsing ice shelves, and massive flooding,” a new sense of urgency toward climate policy has emerged.<sup>139</sup> The states may be better able to enact their own carbon laws with federal climate policy seemingly at an impasse.<sup>140</sup> In fact, the Carbon Tax Center issued a state-by-state analysis and opined that carbon taxation could be an effective and feasible policy move for local

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the transportation sector; (ii) Strengthen natural systems and harden critical infrastructure to increase resiliency to climate change impacts; and (iii) Support municipal energy efficiency and renewable energy projects that reduce emissions and costs.” *Id.*

131. *Id.*

132. *Carbon Pricing and Utilities*, *supra* note 123.

133. *Id.*

134. *Id.*

135. David A. Super, *Rethinking Fiscal Federalism*, 118 HARV. L. REV. 2544, 2594 (2005).

136. *Id.* at 2594–95.

137. Lawrence H. Goulder & Robert N. Stavins, *Challenges from State-Federal Interactions in US Climate Change Policy*, 101 AM. ECON. REV. 253, 253 (2011).

138. Kisska-Schulze & Prum, *supra* note 44, at 105.

139. Hsu, *supra* note 59, at 859 (footnotes omitted).

140. *Id.* at 859–60 (arguing that it would be cheaper and more politically tactical to enact a federal carbon tax); Chen, *supra* note 78 (“With the climate-change movement at an impasse as the Paris climate treaty clashes with Trump’s anti-science agenda, the bottleneck around carbon policy today is more political than technological.”).

governments.<sup>141</sup> The political challenges present at the federal level may pose less of a barrier to enactment at the state level. The majority of state spending, for instance, is attributed to education and social welfare programs; this spending presents a highly acceptable use of revenue to the electorate.<sup>142</sup>

Several state and local governments have recently revived the idea of state-level climate change legislation and made independent moves on climate policy.<sup>143</sup> Until much more recently, state-level plans to reduce emissions have been business-friendly cap-and-trade schemes.<sup>144</sup> California adopted a program with the ambitious goal of reducing overall emissions to year 1990 levels by 2020, “further reduc[ing] emissions to eighty percent of 1990 levels by 2050.”<sup>145</sup> Further, the California Air Resources Board plays a large role in enforcing the Obama-era automobile emissions standards.<sup>146</sup>

Most recently, Washington State balloted Initiative 732, which proposed a fifteen dollar per ton carbon fee, set to steadily increase over the next few decades.<sup>147</sup> In 2007, Boulder, Colorado, adopted a tax on the electricity sector that has reduced emissions by 100,000 tons per year and generated \$1.8 million in revenue.<sup>148</sup> The city uses the revenue to issue rebates to businesses and homeowners and fund the city’s climate action program.<sup>149</sup> These state and local climate change initiatives predate S.1821 and H.1726 but match the spirit and policy goals of the proposals. They support the potential effectiveness of the bills in reducing emissions and

141. Chen, *supra* note 78.

142. Hsu, *supra* note 59, at 912–13.

143. *See supra* Part III.

144. Chen, *supra* note 78.

145. Carlson, *supra* note 15, at 227.

146. Tabuchi, *supra* note 35. Twelve states follow California’s standards. *Id.* Scott Pruitt, the former Administrator of the EPA, had claimed that he would not try to revoke the federal waiver that empowers California to take such a leadership role in automobile emissions standards. *Id.* *But see* President Donald Trump, Remarks at American Center for Mobility (Mar. 15, 2017), <https://www.whitehouse.gov/the-press-office/2017/03/15/remarks-president-trump-american-center-mobility-detroit-mi> [<https://perma.cc/PD2F-C5CQ>]. However, the Trump administration announced in April 2018 that it would be revoking California’s waiver and amending Obama-era fuel efficiency standards. Natasha Geiling, *EPA Plans to End California’s Fuel Economy Waiver Despite Pruitt’s Claims to the Contrary*, THINKPROGRESS (Apr. 27, 2018, 3:06 PM), <https://thinkprogress.org/epa-end-california-waiver-freeze-fuel-economy-standards-2020-ea5ac66b8fed> [<https://perma.cc/T5SL-M36S>].

147. Initiative 732 (“I-732”) was designed to be revenue neutral. The carbon tax proposal included reductions in other sources of state revenue, most notably the state sales tax. Opponents argued that I-732 would cost the state money while supporters claimed that it would allow low-income taxpayers to keep more of their tax dollars. Chelsea Harvey, *It Could Be the Nation’s First Carbon Tax. And Environmentalists Are Fighting over It*, WASH. POST (Oct. 17, 2016), [https://www.washingtonpost.com/news/energy-environment/wp/2016/10/17/it-could-be-the-nations-first-carbon-tax-and-environmentalists-are-fighting-over-it/?utm\\_term=.51316a9c5a9a](https://www.washingtonpost.com/news/energy-environment/wp/2016/10/17/it-could-be-the-nations-first-carbon-tax-and-environmentalists-are-fighting-over-it/?utm_term=.51316a9c5a9a) [<https://perma.cc/GZ64-22E3>].

148. Naveena Sadasivam, *How Boulder Taxed Its Way to a Climate-Friendlier Future*, INSIDECLIMATE NEWS (Nov. 2, 2015), <https://insideclimatenews.org/news/02112015/boulder-taxed-its-way-climate-friendlier-future> [<https://perma.cc/W95L-FKBX>].

149. *Id.*

represent a step forward in obtaining a more prominent place for the issue on the national policy agenda.

This Part discusses the potential advantages and disadvantages of the Massachusetts carbon tax proposals from an economic, cultural, and social perspective. There are strong economic arguments on both sides of the state carbon tax debate, but the political and cultural significance of a state-level tax would nonetheless be extraordinary. Additionally, the resulting reduction in greenhouse gas emissions would cause corresponding improvements in air quality and, however modest, the environment itself. In light of the available climate policy options and the effectiveness of the carbon tax, this Part evaluates S.1821 and H.1726 and argues that the balance between the benefits and costs of a state carbon tax weigh in favor of passing such a bill.

#### A. Impact on State Economies & Cultures

Even though such policies would be best implemented on a national level,<sup>150</sup> unilateral state action presents positive possibilities for the future of climate change legislation. The price-based quality of the carbon tax, as exemplified by both proposed carbon taxes discussed in this Note, allows state carbon taxes to work harmoniously with federal policy, should it ever be enacted. Lawrence Goulder and Robert Stavins identify possible problematic interactions between federal and state quantity-based climate regulations but find no comparable issues with price-based regulations.<sup>151</sup> Although concern for business presents a persuasive reason to carefully consider state-level climate legislation, this Section will discuss ways in which the Massachusetts economy stands to see possible positive impacts from the current carbon tax proposals.

For one, the Massachusetts carbon tax proposals are modest enough to be an attractive economic and fiscal policy option. S.1821 proposes a gradually increasing carbon tax starting at ten dollars.<sup>152</sup> This increases the price of fossil fuel consumption by roughly 2.4% for residential customers and 4% for industrial customers.<sup>153</sup> In December 2014, a study entitled *Analysis of a Carbon Fee or Tax as a Mechanism to Reduce GHG Emissions in Massachusetts* (the “Analysis”)<sup>154</sup> found that a revenue-neutral graduated tax on major sources of carbon emissions would “result in positive impacts on Massachusetts’ economic and employment

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150. Dale W. Jorgenson, Daniel T. Slesnick & Peter J. Wilcoxon, *Carbon Taxes and Economic Welfare*, 1992 BROOKINGS PAPERS ON ECON. ACTIVITY: MICROECONOMICS 393, 394 (“The design of an appropriate level for carbon taxes would involve international coordination and consideration of interactions among different tax and expenditure programs within each nation.”); see *supra* note 51 and accompanying text.

151. Goulder & Stavins, *supra* note 137, at 256.

152. S. 1821, 190th Gen. Court, 1st Ann. Sess. (Mass. 2017), <https://malegislature.gov/Bills/190/S1821> [<https://perma.cc/QW45-2PQB>].

153. Frank Muller & J. Andrew Hoerner, *Greening State Energy Taxes: Carbon Taxes for Revenue and the Environment*, 12 PACE ENVTL. L. REV. 5, 18 (1994).

154. MARC BRESLOW, SONIA HAMEL, PATRICK LUCKOW & SCOTT NYSTROM, *ANALYSIS OF A CARBON FEE OR TAX AS A MECHANISM TO REDUCE GHG EMISSIONS IN MASSACHUSETTS* 76 (2014) (concluding that a flat rebate is more equitable than reducing state tax rates).

sectors while reducing CO<sub>2</sub> emissions by five to ten percent.”<sup>155</sup> This was echoed in arguments at the public hearing in front of the Joint Committee, many of which were made in general support of carbon pricing and not directly in favor of a specific proposal. Representative Solomon Goldstein-Rose claimed that a carbon bill would allow Massachusetts to develop and patent cheap energy technologies: “[T]he most significant benefit of carbon pricing is that it will create a market environment in Massachusetts that will drive a demand for cheap, clean energy and attract companies to move [to Massachusetts] to commercialize their new technologies.”<sup>156</sup> Due to the fledgling state of the clean energy economy, a state carbon tax would encourage consumers to seek alternative sources of energy, potentially attracting new business to the state to fulfill the new demand.

It is also important to note that although most states in the Northeast have voiced interest in adopting state carbon taxes, unilateral state action presents possible disadvantages in the realm of business competition. A state carbon tax would cause the price of exports from the taxing state to be much more expensive relative to imports from other states.<sup>157</sup> Thus, the products subject to the state tax will be less attractive to both the export market and in-state consumers.<sup>158</sup> The taxing state, acting on its own, is trying to correct for externalities that are not confined to its own borders. This tempts neighboring states to free ride on the effects of a carbon tax imposed within another state.<sup>159</sup> In fact, Rhode Island and Connecticut’s proposals are tied to the success of the Massachusetts bills for exactly this reason.<sup>160</sup>

The Massachusetts carbon tax proposals also have an employer incentive to encourage the creation of new jobs, thus strengthening the state economy. Under both S.1821 and H.1726, employer rebates are issued according to the firm’s number of full-time employees, which will encourage firms to expand and invest in labor.<sup>161</sup> However, the CBO finds that the carbon tax would reduce real wages, having a corresponding reduction on the available labor supply.<sup>162</sup> While the economic advantages of adopting a carbon tax in the context of such a developing industry may be exaggerated, Massachusetts’s actions would still send powerful signals to neighboring states. Rhode Island Representative Aaron Regunberg’s testimony at the Joint Committee hearing spoke to his state’s reliance on Massachusetts policy, which, he claimed, has a “ripple effect” on the entire region.<sup>163</sup>

A Massachusetts carbon tax would also have positive cultural impacts with the potential to influence federal policy. For instance, the tax implemented by Boulder,

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155. Kisska-Schulze & Prum, *supra* note 44, at 109–10.

156. *Carbon Pricing and Utilities*, *supra* note 123.

157. Darien Shanske, *State-Level Carbon Taxes and the Dormant Commerce Clause: Can Formulary Apportionment Save the World?*, 18 *CHAP. L. REV.* 191, 193–94 (2014) (following the carbon tax design proposed by Gilbert Metcalf and David Weisbach).

158. *Id.* at 194.

159. *See supra* notes 20–21 and accompanying text.

160. Harvey, *supra* note 60.

161. S. 1821, 190th Gen. Court, 1st Ann. Sess. (Mass. 2017), <https://malegislature.gov/Bills/190/S1821> [<https://perma.cc/QW45-2PQB>]; H. 1726, 190th Gen. Court, 1st Ann. Sess. (Mass. 2017), <https://malegislature.gov/Bills/190/H1726> [<https://perma.cc/8UBS-QQ3T>].

162. CONG. BUDGET OFFICE, *supra* note 81, at 1, 6.

163. *Carbon Pricing and Utilities*, *supra* note 123.

Colorado, allows the city to maintain interest in the issues of climate change, energy, and overall community conservation.<sup>164</sup> Massachusetts, as a population-dense jurisdiction already motivated to politicize climate change,<sup>165</sup> has the ability to provide the model for state-level climate change legislation. The economic benefits, while admittedly uncertain to a point, would be highlighted by the legal and political benefits of implementing a state carbon tax and advocating for similarly-minded states to do the same.

### B. Distribution of Incidences

Generally, states and localities have more regressive tax systems,<sup>166</sup> the level of which varies widely across states and regions.<sup>167</sup> These variances extend to energy taxes. Energy production, consumption, and cost differ across regions, so some areas will bear higher tax burdens than others.<sup>168</sup> Tracey Roberts finds that different regions as a whole experience similar incidences, “but low-income residents in the Northeast, the Ohio Valley, and Florida will be more heavily impacted by a carbon tax . . . due to home heating and electricity costs.”<sup>169</sup> However, more recent studies have determined that “[t]here is little variation across regions,” and any difference that may exist is “at best modest.”<sup>170</sup> Kevin Hassett et al. show that these variances reached a highpoint in 1997 but fell under one-half of a percentage point by 2003.<sup>171</sup> The study, in fact, acknowledges these results as surprising “given the variation in weather conditions and driving patterns across the regions.”<sup>172</sup> But these results are explained when the differences in the consumption of fossil fuels across regions are examined. For example, home heating oil is consumed in higher volumes in New England, gas in the East North Central region, and electricity in the West South Central.<sup>173</sup> The different combinations of fuel usage equate to more similar totals.<sup>174</sup>

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164. Sadasivam, *supra* note 148; *see also supra* notes 148–149 and accompanying text.

165. *See supra* notes 112–113 and accompanying text.

166. Patricia Cohen, *Study Finds Local Taxes Hit Lower Wage Earners Harder*, N.Y. TIMES (Jan. 13, 2015), <https://www.nytimes.com/2015/01/14/business/local-taxes-hit-lower-wage-earners-harder-study-finds.html> [<https://perma.cc/7HCW-3UVN>].

167. Zhiyong An, *Regressive State Tax Systems: Facts, Several Possible Explanations, and Empirical Evidence*, in 101 PROC. ANN. CONF. ON TAX’N & MINUTES ANN. MEETING NAT’L TAX ASS’N 14, 14 (2008).

168. DOWER & ZIMMERMAN, *supra* note 33, at 22–24. Regional effects are measured in two ways: “energy expenditures by households in the region” and “indirect . . . effects[] of the tax on a region’s industrial activity, employment, and wealth.” *Id.*

169. Roberts, *supra* note 89, at 238. *Contra* Williams et al., *supra* note 65, at 817 (“The lightest burdens are in the Pacific coast and the relatively urban states on the East Coast (from Massachusetts to Washington, DC).”).

170. Hassett et al., *supra* note 92, at 157, 166 (reporting the average carbon tax paid by consumers across different regions).

171. *Id.* at 165–66.

172. *Id.* at 165. *Contra* Roberts, *supra* note 89, at 238.

173. Hassett et al., *supra* note 92, at 165.

174. *Id.* at 166 (calculating the average ratio of carbon tax burdens to income for each region). The regional burdens fall between 1.92 and 1.47, with 1.62 as the median. *Id.*

The incidences resulting from the implementation of S.1821 or H.1726 are not an overwhelmingly persuasive argument for rejecting either carbon tax proposal. The 2014 Analysis found that low- and moderate-income Massachusetts households in the first, second, and third quintiles would experience a net gain or come out even under a carbon tax that distributes rebates either per person or per household.<sup>175</sup> Williams et al. echoed this finding for states across the Northeast: electricity prices in “California, the Northwest, and the *Northeast* are the least affected.”<sup>176</sup> However, the Analysis did determine that “a per-person rebate, or a mixed system, would be more equitable than a per household rebate.”<sup>177</sup> The adverse effects of a tax on certain groups are an important consideration when debating a tax proposal, but these concerns should not automatically block the passage of either bill.

### C. Miscellaneous Savings

The reduction in greenhouse gas emissions would translate into positive health benefits and savings in healthcare costs. Few studies have focused on state-level outcomes for state-level carbon bills, but the Center for Health and the Global Environment at Harvard T.H. Chan School of Public Health conducted a study into the “health co-benefits” that might result from the air quality improvements effected by S.1821 and H.1726.<sup>178</sup> The researchers built a model based on the “results of an economic model of the fuel use and carbon emissions reductions . . . health impact functions from the scientific literature . . . and standard health benefit valuation metrics.”<sup>179</sup> The study concluded that the bills would save lives, reduce the occurrence of heart attacks, decrease hospitalizations due to cardiovascular and respiratory diseases, and save \$2.9 billion in healthcare costs over the next twenty-three years.<sup>180</sup> If the health benefits from a single state carbon tax stand to be so significant, multiple state laws would have a profound effect on public health.

The reduction in greenhouse gases resulting from the carbon tax would also offer benefits on the condition of the ecosystem itself. While the Massachusetts air quality study was focused on the health benefits of the carbon tax proposals, it also reported potential benefits to “crop productivity, farming, forestry, and reductions in acid

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175. BRESLOW ET AL., *supra* note 154, at 4–5, 46–48 (analyzing the effects of a revenue-neutral state carbon tax).

176. Williams et al., *supra* note 65, at 820 (emphasis added).

177. BRESLOW ET AL., *supra* note 154, at 4–5.

178. *Projected Health Benefits of Mass. Carbon Fee-and-Rebate Bill Explored*, HARV. T.H. CHAN SCH. PUB. HEALTH, <https://www.hsph.harvard.edu/news/hsph-in-the-news/massachusetts-carbon-bill-health-benefits> [<https://perma.cc/C4BT-396K>].

179. JONATHAN J. BUONOCORE, RENZO R. GUINTO, JONATHAN I. LEVY, SCOTT NYSTROM, CHRIS BROWN & AARON S. BERNSTEIN, AIR QUALITY AND HEALTH CO-BENEFITS OF A CARBON FEE-AND-REBATE BILL IN MASSACHUSETTS 2 (2017), <http://chge.hsph.harvard.edu/files/chge/files/carbonfeema.pdf> [<https://perma.cc/ZD58-T4VD>].

180. *Id.* at 2–3; see also Shira Schoenberg, *Massachusetts Carbon Fee Would Save \$2.9 Billion in Health Costs over Two Decades, Study Finds*, MASSLIVE (Apr. 27, 2017), [http://www.masslive.com/politics/index.ssf/2017/04/study\\_quantifies\\_health\\_benefi.html](http://www.masslive.com/politics/index.ssf/2017/04/study_quantifies_health_benefi.html) [<https://perma.cc/8UZE-CLHM>].

rain.”<sup>181</sup> Air pollutants contribute directly to the production of smog and acid rain, which not only forces residents to breathe in dangerous chemicals but also dampens crop and timber productivity.<sup>182</sup> A carbon tax would also have a two-fold effect on traffic and infrastructure issues. For one, the revenue from a revenue-positive proposal like H.1726 could fund transportation projects. A carbon tax, regardless of revenue use, would also encourage commuters to take advantage of public transportation, reducing congestion and the amount of vehicle emissions released into the atmosphere.

#### CONCLUSION

With the slight if not dismal possibility of imminent federal action on the issue of climate change, the states have the opportunity to play a major role in the area. States have several policy options to choose from, but the carbon tax has proven to be perhaps the most effective and efficient mechanism by which to curb carbon emissions. With the creation of a broad tax base, a state-level carbon tax can not only correct for issues such as regressiveness and competition between neighboring states but also further encourage collaboration on clean energy projects and technologies. The Northeast is the most promising region for such a tax in the United States, and Massachusetts presents a particularly favorable social and political climate for a state carbon tax. Accordingly, two proposals have been introduced to the Massachusetts Senate and House, S.1821 and H.1726.<sup>183</sup> The bills diverge in the use of revenue, one being revenue neutral and the other revenue positive, respectively. However, the proposals further many of the same policy goals and would reach similar results.

While the actual economic prospects under such a tax are hardly definitive, it is possible to support a state carbon tax under many different policy objectives. The increased price of carbon emissions would encourage investment in clean energy technologies and potentially attract new businesses to fill the demand for alternative energy sources. The rebates issued to households and employers under both tax plans counteract the regressiveness and incentivize the creation of new jobs in the state. As a collateral benefit, a state carbon tax would also impact the political and cultural scene by keeping the climate change issue fresh and potentially influencing federal policymakers. The passage of a carbon tax in Massachusetts, or any state for that matter, would be remarkable. It would represent an important step forward in addressing the climate change crisis and hopefully be the start of more proactive government action in the area.

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181. BUONOCORE ET AL., *supra* note 179, at 3, 5.

182. *Id.*

183. *See supra* Section III.A.