

**A Precarious Balance:  
Addressing Climate Change and Its Impacts**

**Leonardo Moraveg**

**Northeast-Midwest Institute (NEMWI)  
Supervisor: Daniel Dozier**

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Despite Climate Change being widely seen as the most important and central issue in international relations, governments have been slow and inadequate in their strategy to resolve this existential threat. The effects from a changing climate are unpredictable and can be devastating. These impacts are felt globally as extreme weather, damage to infrastructure and ecosystems, and changing precipitation levels, all of which have become all too frequent. The scientific consensus is clear that the global community is not curbing emissions sufficiently to mitigate drastic consequences for future generations. Rather than accepting the gravity of this situation, certain governments, including the United States, persist with the idea that change is too infeasible and that the reported impacts are not as drastic as suggested by science.

While the U.S. is failing to respond appropriately to this crisis, it is reassuring to see that two-thirds of Americans believe that the federal government is doing too little to combat global warming.<sup>1</sup> However, such public support is pointless if governments do not act soon to keep global warming below 1.5 Celsius compared to pre-industrial levels to avoid irreversible impacts.<sup>2</sup> Given current policies and pledges, the Intergovernmental Panel on Climate Change (IPCC) quantifies that global warming by the end of this century is expected to reach 2.8 Celsius.<sup>3</sup> This is largely due to rapid industrialization in the developing world, insufficient reform in developed countries, and international agreements that have no enforcement mechanisms. With long-term effects including severe ice melting, rising sea levels, ocean acidification, and severe ecosystem disruption, it has become clear that global warming is a calamity that future generations will inherit and bear the disastrous consequences. Because climate change is such a large issue and change so far is coming slowly, drastic changes and

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<sup>1</sup> Carl Funk & Brian Kennedy, *How Americans see climate change and the environment in 7 charts*, (2020).

<sup>2</sup> IPCC, *Summary for Policymakers*, (2018).

<sup>3</sup> CAT, *CAT Warnings Projects Global Update*, (2020).

policies such as aggressive carbon taxes are needed more than ever to hopefully keep global warming below 1.5 Celsius.

Reduced CO2 emissions due to the Covid-19 pandemic is quite misleading and is only a short-term phenomenon. The environmental effects of global warming are broad and far-reaching. This temporary reduction is not sufficient to leave any positive lasting effects. Despite the pandemic-based reduction, carbon dioxide in the atmosphere reached an all-time high at 417.1 parts per million as reported by the National Oceanic and Atmospheric Administration (NOAA).<sup>4</sup> Even with the reduction of industrial and commercial activity, current trends are not in our favor as rapid deforestation in the Amazons and in parts of Sub-Saharan Africa lead to less carbon capture and the intensification of the Greenhouse effect.<sup>5</sup> Rather than focusing on the current benefits, governments should realize that the pandemic is simply “buying us time,” and that the current prioritization of short-term financial gain is unsustainable. In moments of social distancing and isolation, governments should be motivated to reflect and point towards more sustainable policies that prioritize the regions that are the most vulnerable.

Since the 1950s, droughts, severe storms, and heat waves have simultaneously increased in frequency.<sup>6</sup> Just as on land, heatwaves in the ocean occur more due to climate change, with harmful effects found on a wide range of organisms such as corals, kelp, and seabirds. Periods of wet and dry events in monsoon periods have also increased in South and East Asia.<sup>7</sup> Between 1993 and 2017 global mean sea levels rose on average by 3.1 mm per year and are accelerating.<sup>8</sup>

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<sup>4</sup> Andrew Freedman & Chris Mooney, *Earth's carbon dioxide levels hit record high, despite coronavirus-related emissions drop*, (2020).

<sup>5</sup> Mohamed Adow, *The Climate Debt*, (2020).

<sup>6</sup> CSSR, *Potential Surprises: Compound Extremes and Tipping Elements*, (2018).

<sup>7</sup> Stephen Paige Oburn, *Indian Monsoons Are Becoming More Extreme*, (2014).

<sup>8</sup> WCRP, *Global sea-level budget 1993–present*, (2018).

To make matters worse, ice loss from glaciers and ice sheets in the Antarctic continues; this source accounts for 90 percent of the potential sea-level rise.<sup>9</sup>

Rather than addressing these evident trends, the Trump administration has sought to increase the use of fossil fuels and has eliminated many regulations on emissions, mainly on methane. As of May 2020, the administration has rolled back 64 environmental rules and regulations, and an additional 34 rollbacks are in progress.<sup>10</sup> President Trump has rescinded rules that limit mercury and air toxins from power and coal plants, limiting water pollution, and a ban on methane emissions in landfills. In 2018 the Department of the Interior announced plans to increase offshore oil and gas drilling (being the largest offshore proposal ever).<sup>11</sup> In 2019 the administration completed plans for opening the entire coastal plain of the Arctic National Wildlife Refuge to drilling.<sup>12</sup> Most striking and damaging are the acts of the current administration to leave the Paris Climate Accords.<sup>13</sup> To make matters worse they have replaced Obama-era rules on capping emissions and have removed vehicle emissions standards which are projected to add one billion tons of carbon dioxide (increasing annual US emissions by about one-fifth).<sup>14</sup> They have rewritten EPA's pollution control policies, and a 2018 report claims that the Trump administration will cost the lives of over 80,000 U.S. residents per decade and cause respiratory problems for more than 1 million people.<sup>15</sup> The Trump administration also proposed to cut the EPA's budget by 31 percent, which would have eliminated 38 programs including the Clean Power Plan and the NOAA's fund for developing nations that face the harshest impacts.<sup>16</sup>

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<sup>9</sup> USGS, *Ice, Snow, and Glaciers and the Water Cycle*, (2020).

<sup>10</sup> Nadja Popovich, *The Trump Administration Is Reversing 100 Environmental Rules. Here's the Full List*, (2020).

<sup>11</sup> Brittany Patterson, *Trump Opens Vast Waters to Offshore Drilling*, (2020).

<sup>12</sup> Anne M. Phillips, *Feds finalize plan to open Alaska's Arctic National Wildlife Refuge to oil drilling*, (2019).

<sup>13</sup> Chris Cillizza, *Donald Trump buried a climate change report because 'I don't believe it'*, (2018).

<sup>14</sup> Emily Holden, *Trump to roll back Obama-era clean car rules in huge blow to climate fight*, (2020).

<sup>15</sup> David Cutler & Francesca Dominici, *A Breath of Bad Air: Cost of the Trump Environmental Agenda May Lead to 80,000 Extra Deaths Per Decade*, (2018).

<sup>16</sup> Evan Lehmann, *Trump Budget Cuts Funds for EPA by 31 Percent*, (2020).

Coupling such actions with the fact that the current administration acted in 2018 to remove the employees in the National Security Council Directorate focused on pandemics, cut ties with the World Health Organization (WHO), and proposed to cut the Center for Disease Control's budget, many American citizens will continue to experience adverse health effects of the pandemic and emission regulation rollback.<sup>17</sup>

Countries must enact major reform in how they conduct energy policy to address the environmental injustice impact in the countries most affected by Climate Change. While China is now the largest emitter, historically developed countries have accounted for more than half of all emissions released.<sup>18</sup> Per capita emissions in developed countries are significantly higher compared to developing countries, including China. The expectation that developing nations will not industrialize is impractical and at some fundamental level unjust. Developed nations must lead the way in increasing renewable energy initiatives. Inequity and the economic burdens imposed by Climate Change can be best addressed when the focus is on technology transfer and financial support for renewable and sustainable projects. As part of the negotiations under the UN Framework of Convention on Climate Change (UNFCCC), wealthy countries have agreed to provide \$100 billion a year by 2020 to assist poorer counterparts.<sup>19</sup> Taking into account previous years and the current trends, this is not enough compensation for the effects or significant enough to meet the IPCC's benchmark of 1.5 Celsius.<sup>20</sup>

Even so, the promised funding has not fully materialized as rich countries have recently become far more interested in forcing poorer countries to cut their own emissions. However, this strategy, in addition to being unjust and unfair, is not feasible as transitioning to low-carbon

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<sup>17</sup> Lisa Schnirring, *Trump says US will cut ties with World Health Organization*, (2020).

<sup>18</sup> Mohamed Adow, *The Climate Debt*, (2020).

<sup>19</sup> Mohamed Adow, *The Climate Debt*, (2020).

<sup>20</sup> Mohamed Adow, *The Climate Debt*, (2020).

sources of energy requires great human and financial capital. Between 1961 and 2000, emissions from richer countries caused \$2.3 trillion in damage to poorer countries.<sup>21</sup> A 2019 study by the National Academy of Sciences found that in most low-income countries, high temperatures are more than 90 percent likely to slow economic growth.<sup>22</sup> Severe impacts of climate change in Sub-Saharan Africa and Southeast Asia will exacerbate existing poverty. In 2019, the UN special rapporteur, Phillip Alston, reported that global warming will put 120 million more people into poverty by 2030.<sup>23</sup> As new research by *Nature Communications* shows, Climate Change is a national security issue as rising sea levels can displace 340 million people in the next 30 years.<sup>24</sup> The World Bank also finds that flooding could generate great socio-economic stress by causing an estimated 51 million to 118 million “climate migrants” by 2050.<sup>25</sup>

Combating climate change starts at home. U.S. leadership is crucial to promote renewable and low carbon energy and international agreements. The U.S. can capitalize on its low-emission manufacturing infrastructure and reap significant economic benefits if we establish a Climate Change policy to prevent the outsourcing of low emission industries. The U.S. - and the eighteen states making up northeast-midwest region (NEMW) specifically - must not fall behind in innovative low carbon emissions technology. The NEMW is a major source of much of this low-carbon innovation, but until there is a massive push for renewable energy to become our main and sustainable source of power, the U.S. and the region will fall behind. Now that the cost of solar power has dropped by 90 percent and the price of wind power has dropped 70 percent,

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<sup>21</sup> Mohamed Adow, *The Climate Debt*, (2020).

<sup>22</sup> Mohamed Adow, *The Climate Debt*, (2020).

<sup>23</sup> UN News, *World faces 'climate apartheid' risk, 120 more million in poverty: UN expert*, (2019).

<sup>24</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

<sup>25</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

the NEMW must take advantage of these cost signals to help lead the accelerated development and deployment of low-carbon technologies.<sup>26</sup>

A federal initiative that is grounded by a cost-effective energy policy is desirable, in the interests of the entire United States, and can be effective. The U.S. has three main options for reducing emissions: regulations, subsidies, and carbon pricing. Most economists and business leaders agree that carbon pricing via an effective and broadly-based carbon tax would drive investment into cleaner technologies and be the most cost-effective way of cutting emissions. Unfortunately, carbon taxes have generally been rejected in the U.S. at the state and federal levels due to intense lobbying. In 2019, more than 70 companies met with lawmakers to reject the proposal of a carbon tax, and historically most companies provide lobbying and fundraising support for the conservative side of the political spectrum, led by the extractive energy industry.<sup>27</sup> Since 1998, more than \$2.3 billion has been spent solely on federal elections and campaigns that oppose sustainability measures.<sup>28</sup>

Regardless of scale, no carbon tax has yet been approved in the U.S. However, there has been noticeable progress in reducing CO<sub>2</sub> emissions specifically in the northeast region of the country. One of the oldest and most enduring state efforts is the Regional Greenhouse Gas Initiative (RGGI), a cap-and-trade system operating in Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, New Jersey, Virginia, and possibly Pennsylvania in the future. RGGI compliance obligations apply to fossil-fueled power plants 25MW and larger.<sup>29</sup> The RGGI establishes a regional cap on the amount of CO<sub>2</sub> pollution

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<sup>26</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

<sup>27</sup> Timothy Gardner, *Companies lobby U.S. Congress on carbon tax; senator expects bill in weeks*, (2019).

<sup>28</sup> Open Secrets, *Oil and Gas Lobbying Profile*, (2020).

<sup>29</sup> Congressional Research Service, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, (2019).

that power plants can emit and then issues a limited number of tradable CO2 allowances. The RGGI auctions the allowances and the proceeds go to participating states to invest in strategic energy and consumer benefit programs.

RGGI claims that CO2 emissions in the power sector have declined by over 40 percent since 2005.<sup>30</sup> A total of 96 percent of the regulated power plants have met their compliance obligations, and two reports by the Analysis Group studied RGGI's first and second three-year compliance periods. They found that RGGI was able to generate \$2.9 billion in net economic benefit, \$5.7 billion in public health benefits were produced, \$618 million was saved for consumers on energy bills, and 30,000 jobs were created.<sup>31</sup> RGGI is a comparatively successful bipartisan effort in tackling CO2 emission reduction at a regional level. However, its scale of impact is constrained. A M.J. Bradley & Associates LLC report notes that during the policy development process they assessed economic impacts of the program and their modeling generally showed a two-hundredths of 1 percent change in economic indicators.

It is no surprise that a program that covers .02 percent of the economy is not going to lead to a significant revolution in energy policy. As reported by the Congressional Research Service, "the total CO2 emissions from the nine RGGI states account for approximately 7 percent of U.S. CO2 emissions" and the "CO2 emissions from covered entities in the RGGI states account for approximately 20 percent of all GHG emissions of the RGGI states."<sup>32</sup> While these are measurable economic benefits, the region still heavily depends on non-renewable energy sources

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<sup>30</sup> Congressional Research Service, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, (2019).

<sup>31</sup> Congressional Research Service, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, (2019).

<sup>32</sup> Congressional Research Service, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, (2019).

because northeastern states replaced many coal facilities with natural gas, the production and transmission of which releases methane (a far more potent though shorter-lasting GHG than CO<sub>2</sub>) and renewable energy grew only 2.5 percent since 2005.<sup>33</sup>

As of 2018, a survey conducted by the University of Chicago found that 58 percent of leading economists agree that “Carbon taxes are a better way to implement climate policy than cap-and-trade,” 31 percent stated that they had no opinion, but none disagreed.<sup>34</sup> The shift towards natural gas coupled with the RGGI focusing solely on energy plants simply is not enough to put a serious dent in the amount and rate of GHG production and avoid irreversible global warming. Leading climatologist, James Hansen, explains that a cap-and-trade system would be “business as usual” for large emitting industries. If the goal is to reduce CO<sub>2</sub> emissions to avoid irreversible impacts for climate change, a carbon tax is inherently broader and affects more industries, can generate more revenue, and will reduce emissions at a more efficient rate.<sup>35</sup>

Congress has seen a broad, ambitious, and aggressive bipartisan effort to implement a carbon tax. The Baker-Shultz Carbon Dividends Plan, for example, is supported by a large coalition of economists, politicians, elected officials, fortune 500 companies, and international NGOs.<sup>36</sup> If all Obama-era climate regulations had been kept place, by 2025 they would have achieved approximately 18 percent in greenhouse gas reductions. The Baker-Schultz Carbon Dividends Plan, if enacted in 2021, would cut U.S. carbon emissions in half by 2035 from 2005 levels.<sup>37</sup>

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<sup>33</sup> Congressional Research Service, *The Regional Greenhouse Gas Initiative: Background, Impacts, and Selected Issues*, (2019).

<sup>34</sup> University of Chicago, *Climate Change Policies*, (2020).

<sup>35</sup> James Hansen, *James Hansen on Cap & Trade vs Fee & Dividend*, (2020).

<sup>36</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

<sup>37</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

This is both an ambitious and effective plan. Its coalition of supporters includes BP, ExxonMobil, Shell, Total, as well as AECOM, Allianz, AT&T, Exelon, First Solar, General Motors, Johnson & Johnson, Metlife, Procter & Gamble, PepsiCo, Santander, Schneider Electric and Unilever.<sup>38</sup> The plan also has a key clause where if standards are met, the carbon fee would increase faster to accommodate. The Plan would refund the tax back to individual taxpayers. A family of four, for example, would receive \$2,000 per year in carbon dividends and, according to the Treasury Department in 2017, more than 70 percent of U.S. families would receive more than they paid in higher energy prices.<sup>39</sup> The generated revenue dedicated to renewable energy innovation would make command and control regulation by the government obsolete and has the possibility of persuading businesses to support the Plan. The Plan includes a carbon tariff as well by applying a domestic carbon price to energy-intensive imports.<sup>40</sup>

This would enable a U.S. competitive advantage in low-emission manufacturing and combat problems like carbon leakage. But the NEMW state governments do not have to wait for Washington, D.C., to make and enact a carbon tax to benefit the economies of New England, the mid-Atlantic, and the midwest. If all of the NEMW states or the federal government were to adopt and implement such a carbon tax plan, the region could comply with the EPA and Section 111(d) of the Clean Air Act and it would meet states' commitments of reducing carbon emissions.<sup>41</sup> For example, Massachusetts, New York, and Rhode Island all have targets to reduce their GHG 1990 emissions by 80 percent by 2050, and Vermont has a goal of 75 percent reduction of 1990 levels by 2050.<sup>42</sup> Depending on the rates chosen and the revenue allocation

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<sup>38</sup> Janet L. Yellen & Ted Halstead, *The Most Ambitious Climate Plan in History*, (2018).

<sup>39</sup> James A. Baker III et al., *The Strategic Case for U.S. Climate Leadership*, (2020).

<sup>40</sup> Janet L. Yellen & Ted Halstead, *The Most Ambitious Climate Plan in History*, (2018).

<sup>41</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>42</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

choices made, carbon taxes could raise revenue to offset the financial burden on the consumer. For example, a \$20 per ton state tax related to CO<sub>2</sub> emissions could raise 2 to 3 percent of the state GDP in the most polluting states.<sup>43</sup> To contrast, on average states collect only about five percent of GDP total from all of their revenue sources, including sales, property, income, and business taxes. A carbon tax would therefore be a significant additional revenue stream for states, especially in the NEMW.

The revenues from a carbon tax are subject to a desirable erosion, contrary to popular belief, as over the long-run capital in power plants and other industrial facilities will turn over. If states adopt tax rates that rise in real terms, the rising rate can counteract the decline in the tax base, and it could take decades before states need to worry about declining carbon tax revenues.<sup>44</sup> This means that a state can opt to impose a tax that in a way minimizes administrative costs and maximizes coverage, all while being “predictable” to allow for households to adjust and foster deployment of new technologies in industrial plants and in equipment. While it is true that lower-income households bear the cost of a carbon tax the most heavily, a properly designed carbon tax will address this impact through means-tested dividends, targeted tax benefits, and expansions of existing social safety net programs. For example, lump-sum rebates through other social safety net systems would allow incentives to retain the shift of consumption away from carbon emission-intensive goods while helping middle- and low-income households neutralize the cost.<sup>45</sup>

States have many choices in how to impose a carbon tax, as the point of taxation is mostly independent of who actually pays the cost of the tax because upstream producers or

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<sup>43</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>44</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>45</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

distributors will pass the cost of the tax to purchasers. This gives states the ability to design a carbon tax that broadens coverage or minimizes the number of taxpayers or for many other reasons<sup>46</sup>. This would allow states to adjust their other taxes to improve their fiscal conditions and/or to improve their competitive position compared to other, non-carbon tax states. Eight out of the top 20 state GHG emitters are in the NEMW region. A carbon tax is much more efficient than other alternatives as it takes advantage of the market to allocate the costs of reducing carbon emissions by relying on private entities to act in response to carbon pricing. It is very hard to target subsidies and mandates towards the most cost-effective abatement strategies because the government will not know which technology will cost the least, and because of political favoritism. Clean energy subsidies can also have the undesirable effect of increasing the overall supply of energy and making prices fall, partly offsetting the benefits of the subsidies.<sup>47</sup> A carbon tax is more efficient than standards for renewable electricity as a carbon tax would generate market signals throughout the energy supply chain. For example, the price signal incentivizes energy conservation at all levels and promotes lower-emission technologies and encourages innovation.<sup>48</sup> Finally, carbon taxes incentivize lower-carbon fossil fuels like natural gas in electricity generation rather than coal-fired electricity.

State policy-makers and elected public officials are obviously concerned about the competitiveness effects of unilateral state action. These competitiveness concerns can be addressed state by state as each state will have different fiscal, economic, policy, and political considerations. Policy-makers in all states, however, can design a carbon tax to fit their individual state's fiscal, economic, distributional, and environmental goals. With appropriate

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<sup>46</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>47</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>48</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

consideration of the issues discussed, for example, in the *Brookings Climate and Energy Economics Discussion Paper* by Morris et al, a carbon tax is advocated an efficient method to reach state fiscal and environmental objectives.<sup>49</sup>

Morris, Bauman and Bookbinder<sup>50</sup> suggest that some of the issues that states will have to address when designing a carbon tax include:

- Revenue states could raise with a fee on carbon and how such revenue could play important fiscal and environmental roles.
- Challenges of setting a tax base, *i.e.* the fossil fuels and/or GHG emissions sources that would be subject to the tax and how states may set initial rates and a course for the tax to change over time.
- Potential distributional outcomes of the tax and ways to use the revenue at the state level, with particular attention to approaches that can attract investment and boost economic growth, offsetting the burden of the carbon tax.
- How states can incorporate a carbon tax into their compliance plans for EPA regulations under Section 111 of the Clean Air Act.
- And how to relate carbon taxes with other potential state-level climate and energy policies, both for regulatory compliance and for economy-wide emissions reductions.

Taking into consideration the economic impacts of the current pandemic, given the benefits of added revenue considering recent budget deficits due to Covid-19, and the abnormally cheap price of gasoline, a carbon tax would be minimally noticed by consumers. So

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<sup>49</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers*, (2016).

<sup>50</sup> Adele C. Morris et al., *State-level Carbon Taxes: Options and Opportunities for Policymakers* (2016)

acting now provides an opportunity for highly emitting states of the U.S., particularly the states in the NEMW, to enact meaningful carbon taxes. Self-interest, support from a wide range of political interests as evidenced by the broad coalition supporting the Baker-Schultz carbon tax plan, and strong support from much of the available academic and scientific literature are some of the many reasons that the NEMW states should act quickly to enact carbon taxes.

The current coronavirus pandemic comes at a high cost. Now is the time for the U.S. and the NEMW states to assess the sustainability of commercial and industrial activity. When long-term sustainability is possible, perhaps with shorter term political and financial gain from tax revenue from a carbon tax, future-generations will reap the benefits of a carbon tax.

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