

**To:**

**TCI Leadership Team:** Kathleen Theoharides, Secretary, Massachusetts Executive Office of Energy and Environmental Affairs; R. Earl Lewis, Jr., Deputy Secretary, Maryland Department of Transportation

**TCI Executive Policy Committee:** Marty Suuberg, Commissioner, Massachusetts Department of Environmental Protection; Roger Cohen, Senior Advisor to the Secretary, Pennsylvania Department of Transportation

**TCI Technical Analysis Workgroup:** Christine Kirby, Assistant Commissioner, Massachusetts Department of Environmental Protection; Chris Hoagland, Economist, Climate Change Division, Maryland Department of the Environment

**TCI Investment and Equity Workgroup:** Kate Fichter, Assistant Secretary, Massachusetts Department of Transportation

**TCI Outreach and Communications Workgroup:** Chris Bast, Chief Deputy, Virginia Department of Environmental Quality; Elle O'Casey, Director of Communications and Outreach, Vermont Agency of Natural Resources

**Governors and Other State Officials:** Connecticut, Delaware, New Hampshire, New Jersey, New York, Maine, Maryland, Massachusetts, Pennsylvania, Rhode Island, Vermont, Virginia

**Mayor and Other City Officials:** District of Columbia

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Thank you for your continued leadership in the Transportation and Climate Initiative (TCI) toward the development of a robust and equitable regional clean transportation policy.

In support of these efforts, the 62 undersigned organizations, including members of the Our Transportation Future coalition and additional partners, respectfully submit the following comments in response to the “Draft Memorandum of Understanding of the Transportation and Climate Initiative”<sup>1</sup> (Draft MOU) and “2019 Cap-and-Invest Modeling Results”<sup>2</sup> released on December 17, 2019.

We strongly support TCI jurisdictions’ continued work to develop a regional clean transportation policy. As we have commented previously, we believe such a policy is an important component of achieving a 21st-Century regional transportation system that is

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<sup>1</sup> Transportation and Climate Initiative, Draft Memorandum of Understanding of the Transportation and Climate Initiative (Dec. 17, 2019), [www.transportationandclimate.org/sites/default/files/FINAL%20TCI\\_draft-MOU\\_20191217.pdf](http://www.transportationandclimate.org/sites/default/files/FINAL%20TCI_draft-MOU_20191217.pdf) (Draft MOU).

<sup>2</sup> Transportation and Climate Initiative, *Webinar: Draft Memorandum of Understanding & 2019 Cap-and-Invest Modeling Results* (Dec. 17, 2019), [www.transportationandclimate.org/sites/default/files/TCI%20Public%20Webinar%20Slides\\_20191217.pdf](http://www.transportationandclimate.org/sites/default/files/TCI%20Public%20Webinar%20Slides_20191217.pdf) (2019 Cap-and-Invest Modeling Results).

cleaner; offers more varied, accessible, and affordable transportation options; and serves the needs of everyone.<sup>3</sup>

In these comments, we focus on the modeling results released by TCI jurisdictions thus far as well as several key technical program design elements, including affected fuels and regulated entities, the regional carbon cap, and allowance auctions, stability mechanisms, and flexibility mechanisms, as outlined in the Draft MOU. We also comment on the proposed timeline for finalizing, adopting, and implementing a regional policy and the importance of periodic program reviews to evaluate the policy's performance and make adjustments as needed to achieve program goals. We are submitting comments on these policy elements in advance of the February 28, 2020, comment deadline with the aim of providing early feedback that may help inform TCI jurisdictions' ongoing modeling and program design efforts and discussions.

We are not providing comments here on investment strategies or priorities under the proposed TCI policy, though we continue to believe strongly that thoughtful and targeted investments, determined through open and inclusive processes, are critical to ensuring a robust and equitable policy that benefits people and communities throughout the region, including in rural, urban, and suburban areas. Many of our groups have previously commented on these issues,<sup>4</sup> and we anticipate that members of the Our Transportation Future coalition and others will also submit additional comments on these issues by the February 28 deadline.

Briefly summarized, our major recommendations and conclusions in the comments below are:

- We support the policy development timeline laid out by TCI jurisdictions, with the aim of beginning implementation of the regional policy by 2022, while also designing the program to enable continued expansion and participation by new states in future years.
- We support the proposed definitions of affected fuels and regulated entities.
- We urge TCI jurisdictions to adopt a regional transportation carbon cap that requires at least a 25 percent reduction in carbon pollution between 2022 and 2032, relative to the 2022 emissions level projected in the revised TCI Reference Case. We also urge TCI jurisdictions to explore more ambitious cap reduction levels that may provide even greater benefits than the scenarios considered in the modeling thus far.
- We strongly support auctions as the primary mechanism for distributing allowances under the TCI policy as well as the proposed 3-year compliance period and proposal to allow allowance banking.

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<sup>3</sup> Our Transportation Future comments (July 29, 2019), [www.transportationandclimate.org/sites/default/files/webform/tci\\_2019\\_input\\_form/Our%20Transportation%20Future%20%20Letter%20to%20TCI%20Governors\\_7.29.2019.pdf](http://www.transportationandclimate.org/sites/default/files/webform/tci_2019_input_form/Our%20Transportation%20Future%20%20Letter%20to%20TCI%20Governors_7.29.2019.pdf).

<sup>4</sup> See, e.g., Joint Comments: Framework for a Draft Regional Policy Proposal (Nov. 5, 2019), [www.transportationandclimate.org/sites/default/files/webform/tci\\_2019\\_input\\_form/Joint%20Comments%20on%20TCI%20Framework%2011\\_5\\_2019.pdf](http://www.transportationandclimate.org/sites/default/files/webform/tci_2019_input_form/Joint%20Comments%20on%20TCI%20Framework%2011_5_2019.pdf).

- A strong minimum reserve price or price floor is critical to ensuring at least a minimum level of program performance and allowance proceeds in the early years of the program. We recommend setting a price floor consistent with allowance prices modeled in the 20 percent cap scenario, beginning at \$6 per ton in 2022.
- We strongly support inclusion of a well-designed Emissions Containment Reserve (ECR) to capture additional low-cost pollution reduction opportunities. We recommend setting the ECR trigger price consistent with allowance prices modeled in the 22 percent cap scenario, beginning at \$11 per ton in 2022, and to set the ECR size at 10 percent of the combined allowance budgets of the participating jurisdictions.
- If TCI jurisdictions include a Cost Containment Reserve (CCR), it is important to learn from the examples of similar mechanisms in other markets, such as the CCR in the Regional Greenhouse Gas Initiative (RGGI). Lessons from RGGI include the importance of setting the CCR trigger price at a sufficiently high level that reflects truly unanticipated prices and limiting the CCR size to avoid flooding the market with excess allowances. We recommend setting the CCR price at \$36 per ton in 2022 and limiting the size of the CCR to no more than 10 percent of the combined allowance budgets of the participating jurisdictions. To ensure the integrity of the TCI carbon cap, any CCR allowances released should result in an equivalent or greater reduction in future year cap levels.
- We also strongly support conducting regular, rigorous program reviews and recommend that the first program review take place within three years of program start, by 2025 if the TCI policy takes effect in 2022.

#### **I. Process for Finalizing the MOU, Model Rule, and Adoption**

We support the timeline laid out by the TCI jurisdictions, with the aim of commencing the first compliance period of the TCI program by January 1, 2022.<sup>5</sup> This includes the release of a robust final MOU in spring 2020, with expedient and strong commitments by governors and the mayor of D.C., in order to achieve a regionally coordinated final Model Rule by December 31, 2020.<sup>6</sup>

We support each signatory jurisdiction in committing to follow all required legal processes to establish the TCI program in legal statute and/or regulation, and to do so as soon as practicable in order to commence the TCI program in 2022.<sup>7</sup>

We also support participating Jurisdictions continuing to collaborate and encourage the addition of new jurisdictions to the TCI program, including provisions that enable seamless expansion to additional jurisdictions both before the start of the program (but after the initial signing of the final MOU) and after the launch of the regional program.<sup>8</sup>

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<sup>5</sup> Draft MOU, Appendix § 1.D.

<sup>6</sup> Draft MOU, Appendix § 1.B.

<sup>7</sup> Draft MOU, Appendix § 1.C.

<sup>8</sup> Draft MOU, Appendix § 5.A.

## II. Program Design

### A. Covered Emissions

#### 1. *Affected Fuels*

We support the TCI jurisdictions' inclusion of motor gasoline and on-road diesel as affected fuels subject to regulation.<sup>9</sup> Combustion of fossil fuels in the transportation sector is responsible for over 40 percent of energy-related CO<sub>2</sub> emissions in the region, making this sector the largest source of this pollution.<sup>10</sup> Over 80 percent of these emissions result from motor gasoline and diesel fuel use in on-road vehicles,<sup>11</sup> which are also a leading source of health-damaging particulate matter pollution.<sup>12</sup>

Reducing CO<sub>2</sub> emissions from motor gasoline and on-road diesel fuels under the policy's regional emissions cap is thus critical to addressing climate pollution, meeting TCI states' emissions targets, and building a clean transportation system.

While combustion of motor gasoline and on-road diesel fuels accounts for the lion's share of transportation emissions, combustion of other transportation fuels also contributes to climate change, both at the point of combustion and through earlier lifecycle impacts. Such fuels include, for example, biofuels, aviation fuels, marine fuels, and methane and propane used as transportation fuels.<sup>13</sup> To address transportation's climate impacts fully, it will eventually be necessary to address emissions from these other fuels, either through an expansion of the TCI program<sup>14</sup> or through complementary measures at the state, regional, or federal levels.

#### 2. *Regulated Entities*

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<sup>9</sup> Draft MOU, Appendix § 2.A.

<sup>10</sup> U.S. Energy Information Administration, *Energy-Related Carbon Dioxide Emissions by State, 2005-2016*, [www.eia.gov/environment/emissions/state/analysis/](http://www.eia.gov/environment/emissions/state/analysis/).

<sup>11</sup> U.S. Energy Information Administration, "How much carbon dioxide is produced from U.S. gasoline and diesel fuel consumption?" (May 15, 2019), [www.eia.gov/tools/faqs/faq.php?id=307&t=11](http://www.eia.gov/tools/faqs/faq.php?id=307&t=11).

<sup>12</sup> Union of Concerned Scientists, *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic* (2019), [www.ucsusa.org/resources/inequitable-exposure-air-pollution-vehicles](http://www.ucsusa.org/resources/inequitable-exposure-air-pollution-vehicles).

<sup>13</sup> Electricity is also used as a transportation fuel, though in most of the TCI region CO<sub>2</sub> emissions from electricity generation used to charge electric vehicles are already captured and subject to declining limits under the Regional Greenhouse Gas Initiative (RGGI). With New Jersey and Virginia having adopted rules to join RGGI in 2020 and 2021, respectively, and Pennsylvania Governor Wolf's recent commitment to join RGGI, all 12 TCI states are expected to participate in RGGI's regional power sector CO<sub>2</sub> cap in the coming years.

<sup>14</sup> We recommend evaluating and reporting the emissions impacts of all transportation fuels, including those not covered by the proposed program as part of a regular program review. Such reviews should specifically report on the totals and trends in on-road transportation fuel emissions, including from on-road fuels not covered by the proposed program, and evaluate participating states' overall progress in reducing emissions from on-road vehicles. If the impacts from on-road fuels not covered by the TCI program are significant, participating jurisdictions should consider how best to minimize pollutions from those fuels, either by including them under the TCI program or through development of complementary policies, to ensure overall emissions progress. TCI jurisdictions should also evaluate strategies for reducing pollution from off-road transportation fuels in the program review. We provide additional recommendations on program reviews in Section III, *infra*.

We support the TCI jurisdictions' proposal to enforce the CO<sub>2</sub> emissions cap upstream, with the point of compliance being "State Fuel Suppliers," which include "Position Holders" and "Enterers."<sup>15</sup> Using State Fuel Suppliers as a uniform point of regulation will provide for efficient program implementation across all jurisdictions.

The proposed definitions of regulated entities are comparable to existing regulatory standards already being implemented in California under its similar cap-and-invest program.<sup>16</sup> Given California's successful implementation of its cap-and-invest program, adopting a similar point of compliance and regulatory language for State Fuel Suppliers in the TCI jurisdictions is a logical and workable approach.

#### B. Regional Emissions Cap

Given the transportation sector's outsized contribution to climate pollution in the region, it is critical that the TCI policy cap on CO<sub>2</sub> emissions from transportation fuels be bold enough to tackle the problem. The modeling provides good news: across all three cap scenarios modeled, projected economic, jobs, and public health benefits exceed the projected costs of implementation, with more ambitious pollution reduction trajectories providing greater benefits.<sup>17</sup> These results should give TCI jurisdictions confidence to adopt an ambitious carbon cap that ensures the transportation sector does its part to address the climate crisis.

Based on the modeling thus far, our recommendations on the regional emissions cap<sup>18</sup> are as follows:

- **We support using projected CO<sub>2</sub> emissions from motor gasoline and on-road diesel consumption, as modeled in the revised TCI Reference Case,<sup>19</sup> as the starting level of the cap (e.g., in 2022<sup>20</sup>).** We further agree with including federal clean vehicle standards adopted during the Obama Administration and clean vehicle standards adopted by California and other states in the Reference Case used to project the starting cap level.
- **We urge TCI jurisdictions to adopt a transportation fuels carbon cap that requires CO<sub>2</sub> pollution reductions of at least 25 percent relative to projected 2022 Reference Case levels by 2032.<sup>21</sup>** Since the modeling shows the policy's benefits continue to grow with more ambitious cap reductions, we also encourage TCI jurisdictions to consider a cap reduction greater than 25 percent by 2032, which could lead to even larger net benefits. We recommend that the carbon cap decline by a fixed number of tons each year between the first year and 2032.

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<sup>15</sup> Draft MOU, Appendix § 2.B.

<sup>16</sup> 17 CCR § 95811.

<sup>17</sup> 2019 Cap-and-Invest Modeling Results, *supra* note 2, at slides 28, 34-41.

<sup>18</sup> Draft MOU, Appendix § 2.D.

<sup>19</sup> 2019 Cap-and-Invest Modeling Results, *supra* note 2, at slides 16-21.

<sup>20</sup> Per the Reference Case modeling, the 2022 cap would be 254 million metric tons CO<sub>2</sub>. *Id.* at slide 28.

<sup>21</sup> In other words, a 2032 cap of no higher than 192 million metric tons CO<sub>2</sub>. *Id.*

Given the positive modeling results thus far, there are strong reasons to adopt an ambitious carbon cap in the final TCI policy. Because this modeling is conservative, it also likely underestimates the benefits of the proposed policy, including cap reductions of 25 percent or higher, which are already projected to be the most beneficial scenarios.

1. *The TCI modeling strongly supports adoption of an ambitious carbon cap*

The TCI modeling shows that the benefits of the proposed policy would far outweigh the costs, and that the most ambitious carbon cap considered—a 25 percent reduction in pollution between 2022 and 2032—would produce the greatest benefits of the scenarios considered so far. By 2032, annual net benefits to the region from the 25 percent cap are projected to include:

- 1,000 fewer premature deaths, 1,300 fewer asthma attacks, and 1,700 fewer traffic injuries, resulting in public health benefits of \$10 billion a year;<sup>22</sup>
- Nearly \$3 billion a year in new net economic growth;<sup>23</sup>
- Almost \$2 billion year per year in increased personal disposable income;<sup>24</sup> and
- 8,900 new jobs.<sup>25</sup>

The projected benefits under the 25 percent cap are three to four times higher than those projected under the 20 percent cap and roughly two times higher than the 22 percent cap.<sup>26</sup> All of these benefits are net of policy costs. In other words, the modeling shows that *even if* oil companies try to pass their pollution costs under the policy onto consumers, TCI jurisdictions can ensure residents come out ahead by investing in transportation solutions across urban, suburban, and rural communities, such as improved commutes, reduced traffic congestion, public transit, clean and efficient electric vehicles, and more livable neighborhoods.

Given unambiguous results showing the most ambitious cap modeled would produce the greatest benefits, TCI jurisdictions should adopt a final pollution cap that achieves reductions of no less than 25 percent by 2032. We further encourage the TCI jurisdictions to consider cap reductions larger than 25 percent, which the current modeling suggests might produce even greater benefits. In earlier comments, we have, for example, recommended considering a transportation carbon cap in line with TCI jurisdictions' near-term and long-term economy-wide greenhouse gas emission reduction targets and goals, as shown in the table below.

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<sup>22</sup> *Id.* at slide 37.

<sup>23</sup> *Id.* at slide 36.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at slides 34-37.

## Economy-wide GHG Emission Reduction Targets and Goals as of February 24, 2020

State	Short-term target, years	Long-term target, years
Connecticut <sup>27</sup>	10% below 1990 by 2020, 45% below 2001 by 2030	80% below 2001 by 2050
Delaware <sup>28</sup>	30% below 2008 by 2030	-----
District of Columbia <sup>29</sup>	50% below 2006 by 2032	Carbon neutral by 2050
Maine <sup>30</sup>	45% below 1990 by 2030	80% below 1990 by 2050
Maryland <sup>31</sup>	40% below 2006 by 2030	-----
Massachusetts	25% below 1990 by 2020 <sup>32</sup>	Net zero by 2050 <sup>33</sup>
New Hampshire <sup>34</sup>	20% below 1990 by 2025	80% below 1990 by 2050
New Jersey <sup>35</sup>	1990 level by 2020	80% below 2006 by 2050
New York <sup>36</sup>	40% below 1990 by 2030	Net zero by 2050
Pennsylvania <sup>37</sup>	26% below 2005 by 2025	80% below 2005 by 2050
Rhode Island <sup>38</sup>	45% below 1990 by 2035	80% below 1990 by 2050
Vermont <sup>39</sup>	40% below 1990 by 2030	80-95% below 1990 by 2050

<sup>27</sup> Connecticut Public Act No. 08-98, [www.cga.ct.gov/2008/ACT/PA/2008PA-00098-R00HB-05600-PA.htm](http://www.cga.ct.gov/2008/ACT/PA/2008PA-00098-R00HB-05600-PA.htm).

<sup>28</sup> State of Delaware, *Climate Action in Delaware: 2016 Progress Report* (Dec. 2016), [www.dnrec.delaware.gov/energy/Documents/2016%20Climate%20Action%20Progress%20Report/Climate%20Action%20in%20Delaware%202016%20Progress%20Report.pdf](http://www.dnrec.delaware.gov/energy/Documents/2016%20Climate%20Action%20Progress%20Report/Climate%20Action%20in%20Delaware%202016%20Progress%20Report.pdf).

<sup>29</sup> City of Washington, D.C., Sustainable DC 2.0 Plan (2019), [www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5\\_web.pdf](http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5_web.pdf).

<sup>30</sup> 38 M.R.S. § 576-A (2019), [www.maine.gov/dep/commissioners-office/kpi/details.html?id=606898](http://www.maine.gov/dep/commissioners-office/kpi/details.html?id=606898).

<sup>31</sup> Maryland Greenhouse Gas Emissions Reduction Act - Reauthorization (2016), [mgaleg.maryland.gov/2016RS/chapters/noln/Ch\\_11\\_sb0323T.pdf](http://mgaleg.maryland.gov/2016RS/chapters/noln/Ch_11_sb0323T.pdf).

<sup>32</sup> Massachusetts Executive Office of Energy and Environmental Affairs, *Determination of Greenhouse Gas Limit for 2020* (Dec. 28, 2010), [www.mass.gov/files/documents/2017/12/06/Former%20Secretary%20Bowles%E2%80%99%20Determination%20of%20the%20Greenhouse%20Gas%20Emission%20Limit%20for%202020.pdf](http://www.mass.gov/files/documents/2017/12/06/Former%20Secretary%20Bowles%E2%80%99%20Determination%20of%20the%20Greenhouse%20Gas%20Emission%20Limit%20for%202020.pdf).

<sup>33</sup> See Commonwealth of Massachusetts, "Governor Baker Delivers 2020 State of the Commonwealth Address" (Jan. 21, 2020), [www.mass.gov/news/governor-baker-delivers-2020-state-of-the-commonwealth-address](http://www.mass.gov/news/governor-baker-delivers-2020-state-of-the-commonwealth-address); *An Act Setting Next-Generation Climate Policy*, S. 2477 (2020), [malegislature.gov/Bills/191/S2477](http://malegislature.gov/Bills/191/S2477) (passed by MA Senate on Jan. 30, 2020).

<sup>34</sup> New Hampshire Climate Change Policy Task Force, *The New Hampshire Climate Action Plan: A Plan for New Hampshire's Energy, Environmental and Economic Development Future* (Mar. 2009), [www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action\\_plan/documents/nhcap\\_final.pdf](http://www.des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_final.pdf).

<sup>35</sup> N.J.S.A. 26:2C-39 and 2C-40 (2007), [www.nj.gov/dep/enforcement/docs/air/Air%20Pollution%20Act.pdf](http://www.nj.gov/dep/enforcement/docs/air/Air%20Pollution%20Act.pdf).

<sup>36</sup> *Climate Leadership and Community Protection Act*, S6599 (2019), [www.nysenate.gov/legislation/bills/2019/s6599](http://www.nysenate.gov/legislation/bills/2019/s6599).

<sup>37</sup> Gov. Tom Wolf, Executive Order 2019-01 (Jan. 8, 2019), [www.oa.pa.gov/Policies/eo/Documents/2019-01.pdf](http://www.oa.pa.gov/Policies/eo/Documents/2019-01.pdf).

<sup>38</sup> R.I. Gen. Laws § 42-6.2-2(a)(2)(i) (2017), [webserver.rilin.state.ri.us/Statutes/TITLE42/42-6.2/42-6.2-2.HTM](http://webserver.rilin.state.ri.us/Statutes/TITLE42/42-6.2/42-6.2-2.HTM).

<sup>39</sup> Vermont Department of Public Service, *Comprehensive Energy Plan 2016* (2016), [outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP\\_Final.pdf](http://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf).

2. *The modeling likely underestimates the benefits and overestimates the costs of the program, which further supports adopting an ambitious carbon cap*

As we have previously commented, the TCI modeling relies on battery cost projections that are out of date and likely overestimate the future cost of electric vehicle batteries.<sup>40</sup> As with solar and wind power technologies, lithium ion battery costs have fallen much faster than most analysts projected, including a 35 percent drop between 2018 and 2019 alone.<sup>41</sup> Conservative battery cost assumptions in the modeling likely cause the model to overestimate the cost of transitioning vehicle fleets, including buses, trucks, and cars to EVs.

Beyond battery cost declines, we are also seeing rapid innovation and diversification of offerings in the electric vehicle space. The range, selection, and performance of EVs--both in the light-duty and medium- and heavy-duty spaces--has been improving quickly and has resulted in changing consumer preferences, willingness, and interest in electric options. This may mean that the customer choice parameters embedded in the model could underestimate customers' actual willingness to transition to clean electric options in the near- and mid-term, overstating the difficulty and cost of achieving deeper emissions reductions from the transportation sector in the coming decades.

Such shortcomings are not limited to the TCI modeling alone. In other cap-and-invest programs, compliance costs have consistently been lower than anticipated. In RGGI, for example, power plant carbon pollution reductions have been achieved faster and at lower cost than states have projected at every stage. In 2019, RGGI allowance prices were 32 percent lower than what the states originally projected when they set the 2019 cap level, even as emissions were also 25 percent lower than what the cap required.<sup>42</sup> While these discrepancies reflect, in part, the shortcomings of modeling new and rapidly-developing technologies, they also reflect one of the key features of a market-based cap-and-invest design—that the policy provides both the flexibility and incentive to lower costs and achieve emission reductions most efficiently.

For these reasons, the current TCI modeling, even though it already shows a highly beneficial program, likely overestimates the costs of reducing transportation pollution in the region and

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<sup>40</sup> Joint Comments on 8/8 TCI Reference Case Results Webinar and Next Steps (Aug. 27, 2019), [www.transportationandclimate.org/sites/default/files/webform/tci\\_2019\\_input\\_form/Joint%20Comments%20on%208%20TCI%20Webinar.pdf](http://www.transportationandclimate.org/sites/default/files/webform/tci_2019_input_form/Joint%20Comments%20on%208%20TCI%20Webinar.pdf).

<sup>41</sup> Jeff St. John, "Report: Levelized Cost of Energy for Lithium-Ion Batteries Is Plummeting," Greentech Media (Mar. 26, 2019), [www.greentechmedia.com/articles/read/report-levelized-cost-of-energy-for-lithium-ion-batteries-bnef](http://www.greentechmedia.com/articles/read/report-levelized-cost-of-energy-for-lithium-ion-batteries-bnef).

<sup>42</sup> In 2013, the RGGI states projected that CO<sub>2</sub> allowance prices would reach approximately \$8 per ton, compared to an average price of \$5.43 per ton for allowances sold by the states in 2019 in RGGI's quarterly allowance auctions. In 2019 emissions from RGGI-covered sources were also 59.8 million short tons CO<sub>2</sub>, the lowest in the program's history, compared to a 2019 cap of 80.2 million short tons CO<sub>2</sub>. See RGGI, Inc., *RGGI IPM Analysis: Amended Model Rule* (Feb. 8, 2013), [www.rggi.org/sites/default/files/Uploads/Design-Archive/2012-Review/2013-02-11/13\\_02\\_11\\_IPM.pdf](http://www.rggi.org/sites/default/files/Uploads/Design-Archive/2012-Review/2013-02-11/13_02_11_IPM.pdf); RGGI, Inc., "Auction Results," [www.rggi.org/auctions/auction-results](http://www.rggi.org/auctions/auction-results) (visited Feb. 10, 2020); RGGI, Inc., "RGGI CO<sub>2</sub> Allowance Tracking System," [rggi-coats.org/eats/rggi/](http://rggi-coats.org/eats/rggi/) (Acadia Center analysis of 2019 emissions data).



underestimates the benefits of doing so. We urge the TCI jurisdictions to take these lessons into account by adopting an ambitious carbon pollution cap that maximizes policy benefits.

### C. Allowance Auctions, Stability Mechanisms, and Flexibility Mechanisms

#### 1. *Allowance Auctions*

We strongly support auctions as the primary mechanism for distributing allowances.<sup>43</sup> Auctioning allowances ensures that the public receives the value of allowances through the investment of auction proceeds, rather than delivering that value to the fossil fuel industry through free allocation.<sup>44</sup> Certain conditions may justify auctioning fewer than 100 percent of allowances, such as set asides to advance clean, equitable transportation priorities or regulatory frameworks that are better suited to direct allowance allocation and consignment auctions.

#### 2. *Minimum Reserve Price*

We also strongly support the inclusion of a robust minimum reserve price, or price floor.<sup>45</sup> The minimum reserve price will ensure that the TCI region maintains a reasonable price signal to incentivize the reduction of transportation emissions while generating funds for investment to advance the transportation goals of the participating jurisdictions.

The history of similar programs shows that emission caps are nearly always set too high, resulting in lower allowance prices than projected.<sup>46</sup> While this track record of delivering emission reductions at lower costs than projected is a feature of the cap-and-invest model, allowance prices that fall too low can undermine the program's ability to incentivize and fund the shift to low-carbon behavior. To that end, the RGGI price floor played a pivotal role in that program's early years, when the high cap yielded lower-than-expected allowance prices. As shown in the figure below, the RGGI auction clearing price was set by the price floor in 11 consecutive auctions; without the price floor, RGGI-funded investments in energy efficiency and clean energy programs would have been substantially reduced, and the incentive to switch to non-polluting power sources could have been all but eliminated.

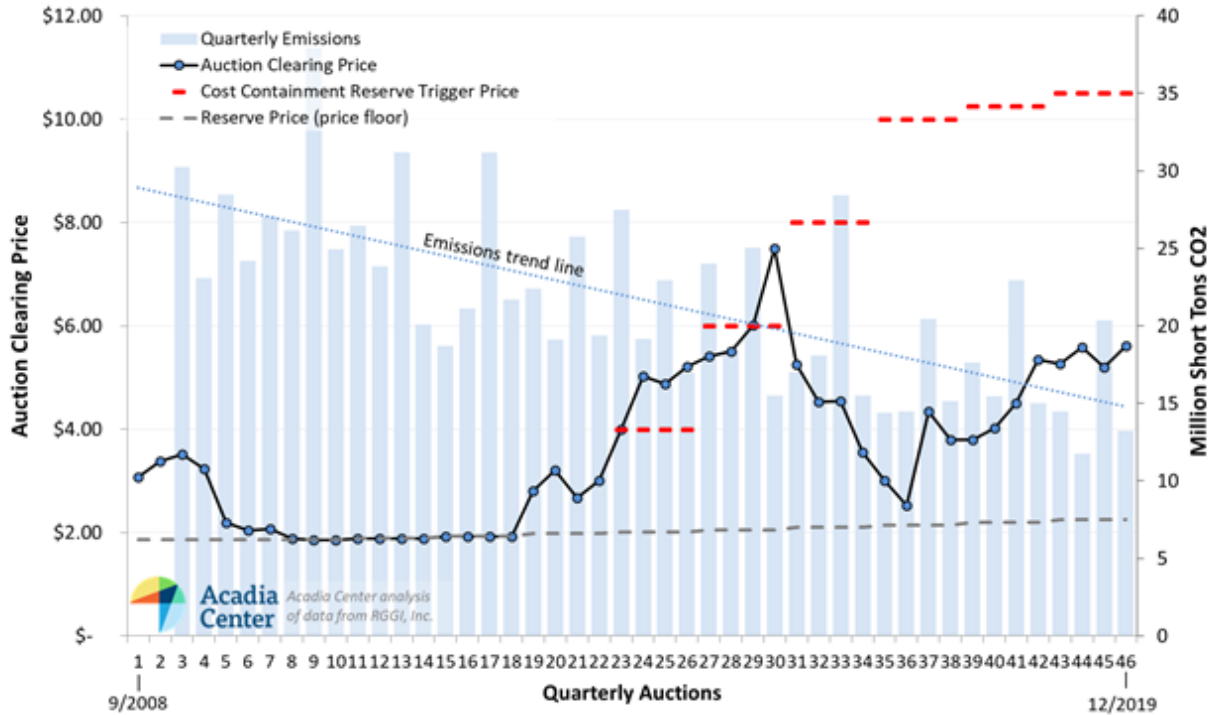
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<sup>43</sup> Draft MOU, Appendix § 2.J.

<sup>44</sup> M. J. Bradley & Associates (2017), A Pioneering Approach to Carbon Markets: How the Northeast States Redefined Cap and Trade for the Benefit of Consumers, [static1.squarespace.com/static/5ab0544a9d5abb6d42468691/t/5b2841d670a6ad07780f8b03/1529364967119/rggimarkets02-15-2017.pdf](https://static1.squarespace.com/static/5ab0544a9d5abb6d42468691/t/5b2841d670a6ad07780f8b03/1529364967119/rggimarkets02-15-2017.pdf).

<sup>45</sup> Draft MOU, Appendix § 2.J.

<sup>46</sup> Burtraw, Dallas, "The Next Big Thing in Carbon Markets? RGGI to Implement an Emissions Containment Reserve," Resources, Sept. 28, 2017, [www.resourcesmag.org/archives/the-next-big-thing-in-carbon-markets-rggi-to-implement-an-emissions-containment-reserve/](http://www.resourcesmag.org/archives/the-next-big-thing-in-carbon-markets-rggi-to-implement-an-emissions-containment-reserve/).



A price floor in the TCI program is necessary to ensure that a carbon price signal exists and that proceeds are generated for investment in clean, equitable transportation solutions.

**We recommend that the initial price floor be set at \$6 per ton in 2022, which is equivalent to the initial allowance price as modeled under the 20 percent cap reduction scenario--the least ambitious scenario analyzed in the modeling thus far.<sup>47</sup> While this price floor would be 64 percent lower than the current price floor used in California and Quebec’s carbon allowance auctions,<sup>48</sup> it would still ensure a modest price signal and a meaningful funding stream to help communities achieve their clean transportation goals. **The price floor should increase by seven percent in each subsequent year**, which would be consistent with the scheduled annual increases in the price triggers for RGGI’s Cost Containment Reserve (CCR) and Emissions Containment Reserve (ECR) and would reflect the need to apply a more substantial price on carbon emissions over time.<sup>49</sup>**

### 3. Emissions Containment Reserve (ECR)

We strongly support the inclusion of an emissions containment reserve (ECR) to complement the price floor.<sup>50</sup> This policy mechanism designed by the RGGI states provides an innovative means to secure additional emission reductions when those reductions can be achieved at low

<sup>47</sup> 2019 Cap-and-Invest Modeling Results, *supra* note 2, at slide 28.

<sup>48</sup> California Air Resources Board, *2020 Annual Auction Reserve Price Notice* (Dec. 2, 2019), [ww3.arb.ca.gov/cc/capandtrade/auction/2020 annual reserve price notice joint auction.pdf](http://ww3.arb.ca.gov/cc/capandtrade/auction/2020%20annual%20reserve%20price%20notice%20joint%20auction.pdf).

<sup>49</sup> RGGI, Inc., “Elements of RGGI,” [www.rggi.org/program-overview-and-design/elements](http://www.rggi.org/program-overview-and-design/elements) (visited Feb. 14, 2020).

<sup>50</sup> Draft MOU, Appendix § 2.G(2).

cost to consumers.<sup>51</sup> Throughout RGGI’s history, reducing emissions has consistently been cheaper than anticipated. If that trend is repeated under a TCI program—as it has been in most cap-and-invest programs—an ECR will prove crucial to the region’s efforts to meaningfully reduce transportation emissions while minimizing costs.

**The ECR should be in place in the program’s first year (e.g., 2022) with an initial trigger price of \$11 per ton, equivalent to the initial allowance price as modeled under the 22 percent cap reduction scenario.<sup>52</sup> Consistent with RGGI’s ECR design, the TCI ECR should be equivalent to 10 percent of the combined allowance budgets of the participating jurisdictions, allowances that are not sold due to the triggering of the ECR should be retired, and the trigger price should increase by seven percent each year.**

#### *4. Cost Containment Reserve (CCR)*

We appreciate the need for the TCI program to be designed to protect consumers from substantial, unanticipated cost impacts. If the TCI jurisdictions decide that a Cost Containment Reserve (CCR) is necessary to achieve that goal,<sup>53</sup> they must avoid the failures of RGGI’s CCR. RGGI’s CCR undermines the program’s environmental integrity by making additional allowances available for purchase without a corresponding reduction in future years’ caps. This issue is exacerbated by the fact that those additional allowances can be purchased at unreasonably low prices, which happened in both 2014 and 2015.<sup>54</sup>

**If the TCI program includes a CCR, the trigger price must be set sufficiently high so that additional allowances are only made available under exceptional circumstances. We offer \$36 per ton as a reasonable CCR trigger price for 2022, equivalent to the highest allowance price modeled under any of the emissions cap scenarios,<sup>55</sup> which is lower than the trigger price for additional allowances in California’s program.<sup>56</sup> As in RGGI, the size of the CCR should be no more than 10 percent of the combined allowance budgets of participating jurisdictions. If CCR allowances are purchased, the cap should further be reduced over the following five years by a quantity equal to or greater than the amount of CCR allowances purchased. The CCR trigger price, like the price floor and ECR trigger price, should increase by seven percent each year.**

#### *5. Linking*

We support the proposal to design the TCI program in such a way that it enables future linkage with other substantially similar programs.<sup>57</sup> At this stage in the program design process, the

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<sup>51</sup> RGGI, Inc., “Elements of RGGI,” [www.rggi.org/program-overview-and-design/elements](http://www.rggi.org/program-overview-and-design/elements) (visited Feb. 14, 2020).

<sup>52</sup> 2019 Cap-and-Invest Modeling Results, *supra* note 2, at slide 28.

<sup>53</sup> Draft MOU, Appendix § 2.G(1).

<sup>54</sup> RGGI CCR allowances were purchased at prices of \$4.00 and \$6.02 in 2014 and 2015, respectively. RGGI, Inc., “Allowance Prices and Volumes,” [www.rggi.org/Auctions/Auction-Results/Prices-Volumes](http://www.rggi.org/Auctions/Auction-Results/Prices-Volumes) (visited Feb. 14 2020).

<sup>55</sup> 2019 Cap-and-Invest Modeling Results, *supra* note 2, at slide 28.

<sup>56</sup> California Air Resources Board, Final Regulation Order: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, § 95915 (2019), [ww3.arb.ca.gov/regact/2018/capandtrade18/ct18fro.pdf](http://ww3.arb.ca.gov/regact/2018/capandtrade18/ct18fro.pdf).

<sup>57</sup> Draft MOU, Appendix § 2.G(3).

primary goal should remain the creation of a program that best serves the communities of the participating jurisdictions while achieving the greatest environmental outcomes. With that said, we appreciate the many long-term benefits of larger markets and uniform policies that would be achieved through program linking.

#### 6. Compliance Period and Banking

We support the use of allowance banking and three-year compliance periods.<sup>58</sup> We also support an interim control period compliance obligation, as implemented in RGGI,<sup>59</sup> requiring compliance entities to hold enough allowances at the end of each of the first two years of a control period to meet at least 50 percent of their compliance obligation. These measures will provide market participants with the flexibility necessary to manage costs while ensuring that covered emissions are both accounted for and reduced.

#### 7. Offsets

Should the TCI jurisdictions allow offsets, the following design considerations are critical to ensure environmental integrity amidst the added market flexibility that offsets provide:

- **Offset legitimacy and transparency:** Should the TCI jurisdictions allow offsets, they should follow existing best practices and strict protocols to ensure approved offset projects are real, additional, verifiable, enforceable, and permanent.<sup>60</sup> Additionally, offset projects should be registered and tracked on a public platform that provides public access to data on awarded offset allowances and offset project documentation.<sup>61</sup>
- **Limit offset use:** Should the TCI program allow offsets, the TCI jurisdictions should follow the practices of existing programs in limiting offset usage to a small portion of emissions compliance, in order to ensure progress in reducing emissions from transportation.<sup>62</sup>
- **Account for oversupply of compliance instruments:** For every offset used for compliance under the TCI program, an allowance would remain in the market that

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<sup>58</sup> Draft MOU, Appendix § 2.1(1)-(2).

<sup>59</sup> RGGI, Inc. Fact Sheet: CO2 Budget Source 2019 Interim Control Period Compliance (Fourth Control Period) (2019), [www.rggi.org/sites/default/files/Uploads/Compliance-Materials/RGGI\\_2019\\_Interim\\_Compliance\\_Fact\\_Sheet.pdf](http://www.rggi.org/sites/default/files/Uploads/Compliance-Materials/RGGI_2019_Interim_Compliance_Fact_Sheet.pdf).

<sup>60</sup> See, e.g., RGGI's requirements for offsets. RGGI, Inc., "Offsets Requirements," [www.rggi.org/allowance-tracking/offsets/requirements](http://www.rggi.org/allowance-tracking/offsets/requirements) (visited Feb. 14, 2020); RGGI, Inc., Model Rule (Dec. 14, 2018), [www.rggi.org/sites/default/files/Uploads/Design-Archive/Model-Rule/2017-Program-Review-Update/2017\\_Model\\_Rule\\_revised.pdf](http://www.rggi.org/sites/default/files/Uploads/Design-Archive/Model-Rule/2017-Program-Review-Update/2017_Model_Rule_revised.pdf) (Subpart XX-10 CO2 Emissions Offset Projects).

<sup>61</sup> See, e.g., RGGI, Inc., "RGGI COATS," [www.rggi.org/allowance-tracking/rggi-coats](http://www.rggi.org/allowance-tracking/rggi-coats) (visited Feb. 14, 2020).

<sup>62</sup> For example, in RGGI, compliance entities may fulfill no more than 3.3 percent of their compliance obligation for each control period or interim control period from offsets. RGGI, Inc., Model Rule (Dec. 14, 2018), [www.rggi.org/sites/default/files/Uploads/Design-Archive/Model-Rule/2017-Program-Review-Update/2017\\_Model\\_Rule\\_revised.pdf](http://www.rggi.org/sites/default/files/Uploads/Design-Archive/Model-Rule/2017-Program-Review-Update/2017_Model_Rule_revised.pdf) (XX-6.5 Compliance). A lower limit, such as 10 percent of the total cap reduction committed to between 2022 and 2032, might also be appropriate. For example, if TCI jurisdictions were to commit to a 25 percent cap reduction by 2032, then the offset limit could be 2.5 percent (i.e., 10% x 25% = 2.5%).

otherwise would have been retired. This inflation of the cap could contribute to supply/demand imbalances and suppress environmental integrity by leading to overallocation.

For example, multiple analyses have found that California's cap-and-invest program had approximately 227 million surplus allowances held in private accounts through 2018, which is nearly equivalent to the 236 million tons of CO<sub>2</sub>e reductions that the program is expected to produce between 2021 and 2030.<sup>63</sup> Nearly half of this surplus can be explained by cumulative use of offsets to date, due to the avoided retirement of regular allowances.<sup>64</sup>

This dynamic has not been significant in RGGI, as allowance prices have been too low to spur significant use of offsets for compliance. In TCI jurisdictions, should offsets be permitted, their impact on allowance supply and potential overallocation should be carefully and openly examined.<sup>65</sup>

### III. Program Review

We strongly support the TCI jurisdictions' commitment to continued review and improvement of the proposed program in future years. Such improvements should be developed with input from stakeholders through an open and accessible process of regular program reviews.

**We recommend that the TCI jurisdictions agree to conduct their first program review within three years of the program's start.** In other words, if the program starts in 2022, then the TCI jurisdictions should conduct a program review by 2025. **Jurisdictions should similarly commit to regular program reviews every following three years (e.g., in 2028 and 2031).**

In conducting regular program reviews, TCI jurisdictions should draw upon the many lessons provided by the regular practice of program reviews in RGGI, which have continually strengthened that program. At a minimum, this should include a commitment to:

- Scope each program review to include consideration of program goals, design elements, and overall effectiveness;
- Demonstrate the achievement of program goals through open and public analysis; and
- Willingly incorporate adjustments to the program as needed, based on analysis conducted during the program review, to meet program goals.

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<sup>63</sup> Near Zero, "Tracking Banking in the Western Climate Initiative Cap-and-Trade Program" (Dec 6, 2019), [www.nearzero.org/wp/2019/12/06/tracking-banking-in-the-western-climate-initiative-cap-and-trade-program-2/](http://www.nearzero.org/wp/2019/12/06/tracking-banking-in-the-western-climate-initiative-cap-and-trade-program-2/).

<sup>64</sup> Climate XChange, *Carbon Pricing in a Just Transition* (Sep. 2019), pg. 30-31, [1akqm23qb5w51pwn3n2deo7u-wpengine.netdna-ssl.com/wp-content/uploads/2018/08/Carbon-Pricing-in-a-Just-Transition-Final-Website.pdf](https://1akqm23qb5w51pwn3n2deo7u-wpengine.netdna-ssl.com/wp-content/uploads/2018/08/Carbon-Pricing-in-a-Just-Transition-Final-Website.pdf).

<sup>65</sup> The program review, discussed in the following section, will be a vital avenue through which to address potential overallocation due to offset provisions.

Nearly a decade of RGGI program review experience underscores the importance of TCI including a regular and comprehensive program review that assesses and helps ensure the program's economic, environmental, and equitable performance. We believe that TCI states will benefit from adopting this model, which has provided transparency, supported public participation, and enabled RGGI states to accommodate and periodically address some of the uncertainty inherent in technical modeling and a market-based regulatory program.

In designing RGGI, member states recognized that, due to the inherent complexity of developing a new market for CO<sub>2</sub> emissions linked to a market for electricity, they would need to proceed with caution and deliberation. They would also need to be certain that their program was producing the results the states were seeking. These concerns prompted the decision to agree to revisit the program goals, design elements, and overall effectiveness after the completion of the first three-year compliance period (2009-2011). In their 2005 MOU, RGGI states memorialized their agreement to conduct a review in 2012, and to determine whether program changes were warranted. The RGGI states have continued this practice in subsequent compliance periods.

Key benefits that RGGI's program review encourages, which could also be replicated under a TCI program include:

- **Transparency:** In its simplest form, RGGI's program review is a monitoring and adjustment process that provides a vehicle for program administrators and stakeholders to assess how the program is working and consider revisions if warranted. However, a program review mechanism also allows states to be ambitious, while experimenting and learning from their efforts. Others have observed that RGGI program reviews have also served as an important venue for directly affected parties and the public to develop their understanding and test the acceptance of proposed program changes in a less structured and formal setting. During program review discussions, stakeholders can see how the regulators themselves are thinking about a challenge and with this opportunity, stakeholders can endeavor to be more responsive in their engagement.
- **Public participation and support:** Program reviews support the development of important technical analysis of possible program adjustments that might be considered during the review, and the effects they may produce in and beyond the region. RGGI's program reviews have also involved periodic stakeholder workshops, webinars, and learning sessions. They provide a venue for representatives of the regulated community, nonprofits, frontline and consumer groups, and industry advocates to be acknowledged, and to engage with the RGGI states on topics related to program design, operation, and effectiveness, including review of updated emissions inventory data, trends, market prices, and revenue investment strategies.
- **Achievement of program goals:** Program reviews provide important feedback to program administrators. For example, RGGI's first program review reinforced the knowledge that the program had an excess supply of allowances by comparison to the region's actual emission levels, and that if the emissions cap were adjusted to reflect

those emissions, the cost control measures that were in place would be ineffective in controlling costs. This, in turn, resulted in the RGGI states revising their regional cap and first exploring then adopting a cost containment reserve to help in stabilizing allowances prices.

\* \* \*

Thank you for the opportunity to provide comments on the Draft MOU. We look forward to continuing to work with TCI jurisdictions to ensure adoption and implementation of an ambitious program that cuts transportation carbon pollution while expanding, improving, and modernizing transportation options for people and communities throughout the region.

Sincerely,

Our Transportation Future Members:

A Better City  
Acadia Center  
Appalachian Mountain Club  
Central Maryland Transportation Alliance  
Ceres  
Chesapeake Climate Action Network  
Clean Air Council  
Climate Law and Policy Project  
Climate XChange  
Connecticut League of Conservation Voters  
ConnPIRG  
Conservation Law Foundation  
E2 (Environmental Entrepreneurs)  
East Coast Greenway Alliance  
Environment America  
Environment Connecticut  
Environment Maine  
Environment Maryland  
Environment Massachusetts  
Environment New Hampshire  
Environment New Jersey  
Environment New York  
Environment Rhode Island  
Environment Virginia  
Environmental League of Massachusetts  
Green Energy Consumers Alliance  
Maine Conservation Voters  
Maryland League of Conservation Voters  
Maryland PIRG  
MassPIRG  
Natural Resources Council of Maine  
Natural Resources Defense Council

New Hampshire PIRG  
New Jersey League of Conservation Voters  
New Jersey PIRG  
New York League of Conservation Voters  
PennEnvironment  
PennPIRG  
Philadelphia Solar Energy Association  
Rails-to-Trails Conservancy  
Rhode Island PIRG  
Sierra Club  
Southern Environmental Law Center  
Transport Hartford Academy at the Center for Latino Progress  
Transportation for America  
Transportation for Massachusetts  
Tri-State Transportation Campaign  
Union of Concerned Scientists  
U.S. PIRG  
VEIC (Vermont Energy Investment Corporation)  
Vermont Conservation Voters  
Vermont Natural Resources Council

Additional Organizations:

Alliance for Clean Energy New York  
Baltimore Transit Equity Coalition  
Chesapeake Physicians for Social Responsibility  
Conservation Voters of Pennsylvania  
Friends of Casco Bay  
Maryland Legislative Coalition  
PennFuture  
Pennsylvania Solar Energy Industries Association  
Sunrise Movement Howard County  
Virginia League of Conservation Voters