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**Sent:** Tuesday, November 15, 2022 7:15 PM  
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**Cc:** Charlene Dindo <[CHARLENE@leg.state.vt.us](mailto:CHARLENE@leg.state.vt.us)>  
**Subject:** [External] Comments to LCAR from Sierra Club: Re 22-P21 - Agency of Natural Resources/Vermont Low Emission Vehicle and Zero Emission Vehicle Rules

[External]

Dear Chairperson MacDonald and Legislative Committee on Administrative Rules Members:

On behalf of our Vermont members and thousands of other Vermonters concerned about addressing climate change, the Sierra Club is stating its support for Vermont to adopt the proposed Vermont Low Emission Vehicle and Zero Emission Vehicle Rules (the “Rules”). The Vermont Air Quality & Climate Division has done a comprehensive and detailed review of the Rules and has gone above and beyond to engage the public. The Legislative Committee on Administrative Rules (“LCAR”) has jurisdiction to ensure the Rules meet legislative intent. I write today to state that I believe the Rules have done so. Technical comments, citizen engagement letters, and group letters that Sierra Club has signed with many other organizations, businesses, and community leaders substantiate that belief. Those materials are part of the public record and are appended hereto for your review.

It is important to note that the Agency of Natural Resources has the legislative authority to promulgate rules under 10 V.S.A. Sections 558, 567, and 554.

*10 V.S.A. § 558 states: “The Secretary may establish such emission control requirements, by rule, as in his or her judgment may be necessary to prevent, abate, or control air pollution. The requirements may be for the State as a whole or may vary from area to area, as may be appropriate to facilitate accomplishment of the purposes of this chapter, and in order to take necessary or desirable account of varying local conditions.”*

*10 V.S.A. § 567(a) states, in relevant part: “The Secretary in conjunction with the Department of Motor Vehicles may provide rules for the control of emissions from motor vehicles.”*

*10 V.S.A. § 554 states, in relevant part: “[The ANR] Secretary shall have power to . . . Adopt, amend, and repeal rules, implementing the provisions of this chapter.”*

The Global Warming Solutions Act (“GWSA”), Vt. Laws No. 153 (2020), granted statutory authority for rulemaking to the Agency of Natural Resources to promulgate rules to meet Vermont's carbon emission reduction requirements.

*10 V.S.A. § 593(a) states that “The Secretary of Natural Resources shall adopt rules pursuant to 3 V.S.A. chapter 25 consistent with the Vermont Climate Action Plan.”*

*10 V.S.A. § 593(b) states "The Secretary of Natural Resources is directed to adopt rules to meet the 2025 emissions reductions by December 1, 2022.*

The Rules are specially named in Vermont's Climate Action Plan ("CAP") as key measures that must be adopted to meet Vermont's greenhouse gas emissions reduction requirements, which were set by the Legislature in the GWSA.

The Rules meet the legislative intent to reduce noxious emissions and greenhouse gas emissions. Coupled with the Legislature's previous bold investments in EV infrastructure and EV incentives for low- and moderate-income Vermonters, these Rules will help to ensure that Vermonters have access to cost-saving and carbon-cutting cleaner vehicles by requiring auto manufacturers to annually ratchet up their delivery of EVs into Vermont.

In summation, we request that LCAR accept the Rules as submitted by the Agency of Natural Resources. We appreciate the Legislature's commitment to reducing air and climate pollution in ways that are cost-effective and equitable. We also very much appreciate the thorough and important work of the Agency of Natural Resources to respond to the state's climate commitments in ways that save money, improve public health, grow jobs, and advance equity outcomes. These Rules reflect Vermont's commitments and must be adopted to meet our moral and legal obligations to address climate change. We look forward to greater collaboration among the Legislature, Administration, organizations like mine, and all Vermonters as we work to do our part to address the existential challenges of climate change.

Sincerely,

Robb Kidd  
Vermont Sierra Club  
Conservation Program Manager  
(802) 505-1540

Attachments: 3  
Sierra Club Letter to LCAR11/22  
Technical Coalition Comment Letter 9/22  
Support Letter Coalition and Citizens to ICAR 8/22



The Honorable Julie Moore  
Agency of Natural Resources Central Office  
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Montpelier, VT 05620-3901

**Subject:** *Comments in Support of the Advanced Clean Cars II, Advanced Clean Trucks, Low NOx Heavy-Duty Omnibus, and Phase II Greenhouse Gas Emissions Standards Rules*

Dear Secretary Julie Moore,

On behalf of the undersigned organizations, we write to express our strong support for the Advanced Clean Cars II (ACC II), Advanced Clean Trucks (ACT), Low NOx Heavy-Duty Omnibus (HDO), and Phase II Greenhouse Gas Emissions Standards (Phase II) rules (together, the Rules). These Rules are fundamental components of needed progress, and we urge the Agency of Natural Resources (the Agency) to adopt the Rules by December 1, 2022, to ensure Vermonters realize the cost savings, economic advantages, health benefits, and reduced climate damaging pollution made available by the Rules. We also ask the Agency to make several minor and common-sense adjustments. Under ACC II, we urge the Agency to ensure that programs qualifying for Environmental Justice (EJ) credits are quickly put in place, and that the Agency commits to immediately engaging with community members and environmental justice organizations to develop and implement eligible EJ programs. Under the ACT Rule, we ask the Agency to adjust the early action credits to ensure that the sales requirements do not lose their effectiveness, and we urge the Agency to initiate a separate rulemaking in 2023 to adopt a fleet reporting requirement.

Our organizations represent over 30,000 Vermont members, Vermont member businesses, and Vermont activists who join us in supporting bold, equitable, and essential climate action. Our organizations also represent many tens of thousands of members across New England and the country. We request that these comments be included in the formal record as expressing support from the undersigned organizations, individually and collectively.

Vermont, and indeed the entire world, is in the midst of a climate crisis brought on by excessive fossil fuel combustion. The Intergovernmental Panel on Climate Change is clear that to fend-off the worst consequences of climate change, climate damaging emissions must be rapidly reduced *now* and become *net-negative*<sup>1</sup> by approximately 2050.<sup>2</sup> This decade is humanity's final opportunity to avert the worst impacts of climate change. Vermont must help by doing its part in the global effort. Vermont has already committed to binding greenhouse gas emission reduction

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<sup>1</sup> The IPCC defines "net negative CO2 emissions" as being "reached when anthropogenic removals of CO2 exceed anthropogenic emissions." See IPCC, *AR6 Climate Change 2021: The Physical Science Basis*, at 15 n.23 (2021), <https://www.ipcc.ch/report/ar6/wg1/#SPM>.

<sup>2</sup> See, e.g., *id.* at 15-18.

targets,<sup>3</sup> and has identified these Rules as key policies to help the State achieve those reductions.<sup>4</sup> The Agency should take all available steps to quickly implement the Rules.

We know that rapid action is vitally needed to blunt the harms already being caused by climate change, and to mitigate the extreme threats Vermonters will face if we continue to dump carbon into the atmosphere.<sup>5</sup> We also know that disproportionately disadvantaged communities bear the greatest burdens from climate change.<sup>6</sup> Transportation is the largest source of climate-disrupting pollution in Vermont, accounting for about 40% of Vermont’s total greenhouse gas emissions.<sup>7</sup> And fossil fuel-powered cars, trucks, and buses account for the vast majority of that pollution. Indeed, the “combination of our mostly rural nature, dispersed land use patterns and heavy reliance on fossil-fueled vehicles is a significant reason why Vermonters emit more greenhouse gasses per capita than any other state in New England.”<sup>8</sup> With the recent setbacks in implementing the Transportation Climate Initiative Program in the Northeast, and the lack of any other clear policy or regulatory tools to achieve certain and significant pollution reductions in the transportation sector, adopting the Rules in a timely fashion is critical to meeting Vermont’s emissions requirements.<sup>9</sup>

The health impacts from vehicle pollution are also enormous, and must be addressed. In addition to contributing to increased global temperatures and intensifying climate disasters, vehicle pollution contributes to higher rates of asthma, bronchitis, cancers, and premature deaths. Historically marginalized communities disproportionately suffer from unhealthy air due to carbon monoxide, fine particulate matter, nitrogen oxide, and smog produced from transportation fossil fuels. Enacting the Rules will reduce the sources of that toxic air pollution, providing meaningful benefits to Vermonters.

Vermonters are also disproportionately burdened with volatile gasoline prices because we are more dependent on personal vehicles than many other Americans.<sup>10</sup> The Rules help us flip that

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<sup>3</sup> Vermont Global Warming Solutions Act, Vt. Laws No. 153, H.688 (2020) [hereinafter, “Act 153”], <https://aoa.vermont.gov/sites/aoa/files/Boards/VCC/ACT153%20As%20Enacted.pdf>.

<sup>4</sup> Vermont Climate Council, *Initial Vermont Climate Action Plan*, 253 (Dec. 2021) [hereinafter, “Initial Vermont CAP”].

<sup>5</sup> See, e.g., Initial Vermont CAP.

<sup>6</sup> Act 153, Sec. 2(5).

<sup>7</sup> Vermont Agency of Natural Resources, Air Quality & Climate Division, *Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2017*, at 11 (May 2021) [hereinafter, “Vermont GHG Inventory”], [https://dec.vermont.gov/sites/dec/files/aqc/climate-change/documents/\\_Vermont\\_Greenhouse\\_Gas\\_Emissions\\_Inventory\\_Update\\_1990-2017\\_Final.pdf](https://dec.vermont.gov/sites/dec/files/aqc/climate-change/documents/_Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2017_Final.pdf).

<sup>8</sup> Initial Vermont CAP at 68.

<sup>9</sup> *Id.* (“[T]ransforming the state’s transportation system [is] essential to meeting the emissions reduction requirements of the Global Warming Solutions Act.”).

<sup>10</sup> See Art Woolf, *Vermonters love the environment. So why are we driving so much more?*, BURL. FREE PRESS (Aug. 30, 2018) (“The statistically average Vermonter drives about 2,000 more miles per year than the average American.”), <https://www.burlingtonfreepress.com/story/money/2018/08/30/fossil-fuel->

script. Vermonters stand to gain significant transportation savings and financial benefits<sup>11</sup> under the Rules. If the State delays action, however, Vermonters stand to sustain significant financial harms. The Vermont Legislature has already found that “[d]elaying necessary policy action to address the climate crisis risks significant economic damage to Vermont.”<sup>12</sup> That legislative finding is backed up by research.<sup>13</sup> Such harms can be diminished by taking action now, and the Rules present a significant opportunity to do so.

Transportation transformation is needed to zero-out emissions from that sector. This suite of Rules will support that transition by making more electric cars, trucks, and buses available to Vermonters, and by slashing harmful pollution. The Rules also will help ensure that Vermont is a leader in transportation decarbonization, and help Vermonters access a global supply of new technologies that provide meaningful benefits to Vermont and its residents. Additional benefits created by the ACC II, ACT, HDO, and Phase II Rules are described below.

### ADVANCED CLEAN CARS II RULE

On August 25, 2022, the California Air Resources Board (CARB) unanimously approved the ACC II program. That program starts zero-emission passenger vehicle sales requirements at 35% in model year (MY) 2026 and gradually increases that requirement to 100% by 2035. It also tightens passenger vehicle criteria pollutant tailpipe standards. It does not prevent Vermonters from owning or registering their current fossil fuel vehicles or purchasing and registering used fossil fuel vehicles either before or after 2035. The regulation applies to manufacturers.<sup>14</sup>

Now that California has adopted these standards, other states may also move to adopt them pursuant to the federal Clean Air Act<sup>15</sup> and state law. Vermont has such authority under existing State law,<sup>16</sup> and should use that authority to implement the ACC II Rule. If Vermont does so in 2022, Vermont will be able to enforce the ACC II requirements for MY 2026. Delaying adoption would mean that Vermonters miss out on zero-emission vehicles (ZEV) they would otherwise be able to acquire, and that Vermonters lose the many important co-benefits ACC II provides—such as improved health, air quality, climate safety, and financial savings. To ensure that Vermont achieves such benefits as soon as possible, we urge the Agency to adopt the ACC

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[consumption-vermonters-driving-more-miles-their-cars/1127742002/](https://www.vermont.gov/news/2022/08/25/consumption-vermonters-driving-more-miles-their-cars/1127742002/).

<sup>11</sup> See, e.g., Drive Electric Vermont, EV Operating Cost History, <https://www.driveelectricvt.com/about-evs/cost-of-ownership>.

<sup>12</sup> Act 153, Sec. 2(3).

<sup>13</sup> Hal Harvey, et al, *The Costs of Delay*, Energy Innovation Policy & Technology, 14 (2021), [https://energyinnovation.org/wp-content/uploads/2021/01/Cost\\_of\\_Delay.pdf](https://energyinnovation.org/wp-content/uploads/2021/01/Cost_of_Delay.pdf).

<sup>14</sup> See, e.g., Vt. Agency of Nat’l Resources, *Vermont Low and Zero Emission Vehicle Regulations, Proposed Filing* (June 24, 2022).

<sup>15</sup> See 42 U.S.C. § 7507.

<sup>16</sup> See 10 V.S.A. §§ 567 & 558.

II Rule by December 1, 2022.<sup>17</sup> There is no time left for delay.

Vermont was one of the first states to adopt the California passenger vehicle standards and has been successfully implementing them since MY 2000. ACC II merely strengthens those already existent standards. The ACC II regulation starts at 35% ZEV sales in model year 2026 with an interim target of 68% sales by 2030 and a 100% target in 2035. It also provides flexibilities—such as the ability to utilize early compliance credits, environmental justice credits, and historical credits—that will help reduce the regulatory burden on manufacturers in states with lower sales than California. The current Advanced Clean Cars Program ZEV mandate levels out ZEV sales at approximately 7-8% starting in model year 2025 and maintains that requirement for subsequent years. Due to the current level of ZEV sales across the United States, and globally, it is clear that this 7-8% sales target is far below the current state of the market and does not reflect real-world sales. As of September 2022, Bloomberg’s New Energy Finance projects that market forces alone will make electric vehicle sales reach 23% of U.S. passenger vehicle sales in 2025, and 52% in 2030.<sup>18</sup> The Rules will facilitate and accelerate that already occurring process and strengthen the current standards.

The ACT II Rule is also in line with Vermont’s climate and air quality requirements and goals, is necessary, feasible, a key strategy to reduce emissions from the transportation sector, and will help accelerate the transition to the clean transportation future that is occurring across the United States and world. And with strong automaker commitments and federal laws—such as the Infrastructure Investments and Jobs Act and the Inflation Reduction Act—more charging infrastructure will be placed throughout Vermont, and electric vehicles will become more accessible and affordable.

### **I. *Automakers Are Already Investing in Electric Vehicles***

During the ACC II hearing at CARB, no automaker opposed the regulations. While many stated that hitting the ZEV targets could be a challenge, none said it was infeasible. Considering that automakers have already announced over \$97 billion dollars of investments to support the transition towards ZEVs,<sup>19</sup> and almost all car companies have committed to increasing the number of ZEV models in their fleets over the next decade, the ACT II standards merely support and accelerate the industry’s transition to ZEVs.

### **II. *Vermont Drivers Want Electric Vehicles***

Electric vehicle sales in Vermont have increased dramatically in the State since joining the original Advanced Clean Cars program in 2000. And Vermonters’ interest in electric vehicles continues to increase—ZEV vehicle purchases in May 2022 were just over 6% of sales, and

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<sup>17</sup> 10 V.S.A. § 593(b), *as modified by Act 153, Sec. 4.*

<sup>18</sup> Ira Boudway, *More Than Half of US Car Sales Will Be Electric by 2030*, BLOOMBERG (Sept. 20, 2022), <https://www.bloomberg.com/news/articles/2022-09-20/more-than-half-of-us-car-sales-will-be-electric-by-2030>.

<sup>19</sup> Atlas Public Policy EV Hub, Automakers Dashboard, <https://www.atlasevhub.com/materials/automakers-dashboard>.

surveys have shown that 40% of Vermonters are interested in purchasing an electric vehicle.<sup>20</sup> Zero-emission vehicle sales in June 2022 surpassed 8.4% of new vehicle sales across the country and increased from 4.9% in June of 2021.<sup>21</sup>

### **III. *Sufficient Infrastructure Exists to Support the ACC II Rule in Vermont***

While the majority of electric vehicle drivers charge their vehicles overnight at home, there are currently 306 public locations in Vermont with a total of more than 764 electric vehicle charging stations throughout the state.<sup>22</sup> While the move towards 100% ZEV sales by 2035 will require more infrastructure to support those vehicles on the road, the regulation's year-over-year ramp up provides the State with ample time to ensure that there is a robust charging network available to drivers. And the state is already seeing increased funding available to support charging infrastructure in the state. For example, under the Infrastructure Investment and Jobs Act, Vermont will receive \$21.2 million through 2026—the start of the ACC II program—to further expand the charging infrastructure available throughout the state.<sup>23</sup> Vermont also appropriated an additional \$12 million in the FY23 budget to support targeted electric vehicle charging infrastructure deployment.<sup>24</sup> And Vermont's Department of Public Service has identified pathways to support the growing load on Vermont's grid from electric vehicle charging.<sup>25</sup>

### **IV. *The ACC II Rule Will Provide Vermonters Air Quality and Health Benefits***

Gasoline and diesel vehicles are known emitters of dangerous air pollutants, including nitrogen oxides (NOx) and particulate matter (PM). To combat pollution from the transportation sector, the American Lung Association states that adopting Advanced Clean Car regulations is an important strategy to clean up air quality, as zero-emission vehicles do not emit toxic tailpipe pollutants.<sup>26</sup> Cleaning up the transportation sector provides significant health benefits as well. According to the Lung Association's *State of the Air* report, more than 137 million people in the United States live in counties with unhealthy levels of ozone or particulate pollution.<sup>27</sup> Air

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<sup>20</sup> Vermont Agency of Transportation, *State of Vermont, National Electric Vehicle Infrastructure Plan*, 16 (Aug. 1, 2022), [https://vtrans.vermont.gov/sites/aot/files/VERMONT\\_2022%20NEVI%20State%20Plan\\_FINAL.pdf](https://vtrans.vermont.gov/sites/aot/files/VERMONT_2022%20NEVI%20State%20Plan_FINAL.pdf).

<sup>21</sup> *See supra*, note 19.

<sup>22</sup> U.S. Department of Energy, Alternative Fuels Data Center, *Alternative Fueling Station Locator* (last visited Sept. 28, 2022), <https://afdc.energy.gov/stations/#/analyze?region=US-VT&fuel=ELEC>.

<sup>23</sup> Vermont National Electric Vehicle Infrastructure Plan: [https://vtrans.vermont.gov/sites/aot/files/VERMONT\\_2022%20NEVI%20State%20Plan\\_FINAL.pdf](https://vtrans.vermont.gov/sites/aot/files/VERMONT_2022%20NEVI%20State%20Plan_FINAL.pdf).

<sup>24</sup> Vermont Law, No. 185, G.600(a)(3) & G.600(b)(1) (2022).

<sup>25</sup> *See* Vermont Department of Public Service, *Comprehensive Energy Plan*, 127 (2022), [https://publicservice.vermont.gov/sites/dps/files/documents/2022VermontComprehensiveEnergyPlan\\_0.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/2022VermontComprehensiveEnergyPlan_0.pdf).

<sup>26</sup> American Lung Association, *Comments on the Advanced Clean Cars II Workshop* (Nov. 5, 2021), [ALA ACC II Workshop Comments](#).

<sup>27</sup> American Lung Association, *State of the Air: Key Findings* (2022), <https://www.lung.org/research/sota/key->

pollution, including that from the transportation sector, can cause asthma attacks, lung cancer, shortness of breath, heart attacks, stroke, preterm birth, and premature death. By moving towards 100% ZEVs, which emit zero tailpipe emissions, these health concerns can be addressed. In California, the ACC II program is anticipated to cumulatively reduce toxic air pollution in the passenger vehicle fleet by 57,090 tons of reactive organic gasses, 83,850 tons of oxides of nitrogen, and 5,330 tons of fine particulate matter by 2040, relative to a baseline without implementation of the Rules.<sup>28</sup> As described in Section V (ACC II EV-REDI Modeling Results), immediately below, similar air quality benefits will also accrue to Vermonters.

Moreover, “the pollution associated with transportation disproportionately impacts disadvantaged communities, thus having unequal public health consequences and burdens.”<sup>29</sup> Under Vermont law, rules like ACC II “must prioritize the allocation of investment of public resources to these communities and minimize, to the greatest extent practicable, potential regressive impacts.”<sup>30</sup> ACC II is well aligned with existing Vermont laws and priorities.

#### ***V. ACC II EV-REDI Modeling Results Show Additional Beneficial Outcomes***

The EV-REDI modeling tool developed by Synapse Energy Economics for Sierra Club, shows that adoption of ACC II in Vermont would likely lead to the following results and benefits by 2035:

- 58% of its light-duty vehicle stock would be EVs (up from 1% in 2021)
- It would have 0.32 million light duty EVs on the road (up from 0.01 million in 2021)
- Its light-duty vehicles would consume 93 million gallons of gasoline (down from 287.83 million gallons in 2021)
- Light-duty tailpipe CO<sub>2</sub> emissions would be 0.77 MMT CO<sub>2</sub> (down from 2.39 MMT CO<sub>2</sub> in 2021)
- Light-duty vehicle NO<sub>x</sub> emissions would be 0.21 thousand MT (down from 1.19 thousand MT in 2021)
- Light-duty vehicle PM<sub>2.5</sub> emissions would be 0.01 thousand MT (down from 0.03 thousand MT in 2021)
- Light duty-vehicle SO<sub>2</sub> emissions would be 5 MT (down from 16 MT in 2021)

#### ***VI. The ACC II Rule Helps Vermont do its Part to Address Climate Change***

In addition to improving air quality and health, reducing transportation emissions is a key strategy to combating climate change. The transportation sector’s tailpipe emissions account for

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[findings#:~:text=The%20%E2%80%9CState%20of%20the%20Air,of%20particle%20pollution%20or%20Oozone.](#)

<sup>28</sup> International Council on Clean Transportation, *Benefits of adopting California medium- and heavy-duty vehicle regulations under Clean Air Act Section 177*, 2 (Nov. 2021), <https://theicct.org/wp-content/uploads/2021/12/state-level-hdv-emissions-reg-FS-oct21.pdf>.

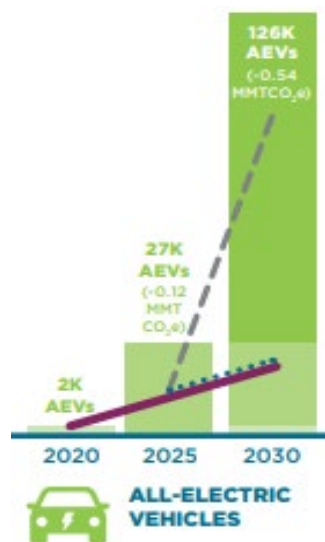
<sup>29</sup> Initial Vermont CAP at 70.

<sup>30</sup> Act 153, Sec. 2(5) (2020).



about 40% of the state’s overall greenhouse gas emissions.<sup>31</sup> Average temperatures in Vermont have already increased by 2 degrees Fahrenheit in the summer and 4 degrees Fahrenheit in the winter.<sup>32</sup> Vermont is already experiencing acute droughts, shorter winters, more tick-borne illness, and increased cyanobacteria pollution in our public waters. To avoid the worst effects of climate change, it is imperative that Vermont reduce emissions from the highest emitting sector—transportation. ACC II is the tool to do this.

Implementing ACC II could place the State on a dramatically better path towards achieving the greenhouse gas emission reduction requirements mandated by the Global Warming Solutions Act,<sup>33</sup> which requires ANR to adopt rules identified by the Climate Action Plan no later than December 1, 2022.<sup>34</sup> The pending Rules—including ACC II—were all named in the Climate Action Plan.<sup>35</sup>



Energy Action Network, *Annual Progress Report for Vermont*, at 8 (2022), [https://www.eanvt.org/wp-content/uploads/2022/08/EAN-report-2022\\_web.pdf](https://www.eanvt.org/wp-content/uploads/2022/08/EAN-report-2022_web.pdf)

<sup>31</sup> Vermont GHG Inventory at 11.

<sup>32</sup> See Vt. Dept. of Health, *Climate Change in Vermont* (last visited Sept. 29, 2022), <https://www.healthvermont.gov/health-environment/climate-health/climate-change>.

<sup>33</sup> See, e.g., 10 V.S.A. § 578(a). See generally Act 153.

<sup>34</sup> See, e.g., 10 V.S.A. § 593(b), as modified by Act 153, Sec. 4.

<sup>35</sup> See Initial Vermont CAP at 253 (identifying the ACC II, ACT, HDO, and Phase II Rules as regulations that must be adopted by the Agency by December 1, 2022, pursuant to 10 V.S.A. § 593(b), and under existing rulemaking authority found in 10 V.S.A. §§ 567 & 558).

## VII. *The ACC II Rule Provides Economic Benefits and Cost Savings for Vermonters*

The Vermont Climate Action Plan correctly notes that Vermont’s reliance on fossil fuels is a significant drain on our economy.<sup>36</sup> “Vermonters collectively spend over \$1 billion on fossil fuels for transportation. Approximately 70% of those dollars leave the state’s economy every year. In contrast, electricity purchases keep far more dollars in Vermont. Over 50% of every dollar spent on electricity stays here. Moving to more efficient, electric vehicles will keep more of the money we collectively spend on transportation in the state’s economy and in Vermonters’ pockets.”<sup>37</sup>

In Vermont, charging an electric vehicle is like paying \$1.50 per gallon of gasoline.<sup>38</sup> And those costs are more likely to remain stable over time than volatile fossil fuel costs.<sup>39</sup> This is because Vermont regulates utility electricity rates,<sup>40</sup> and because Vermont’s electricity sector is largely fossil fuel free.<sup>41</sup> Moreover, two of Vermont’s electric utilities (Green Mountain Power and Burlington Electric Department), which together serve the bulk of Vermonters,<sup>42</sup> offer reduced electricity rates for electric vehicle charging,<sup>43</sup> making EV charging even more affordable when compared to transportation fossil fuel costs. Under Vermont law, all Vermont electric utilities must adopt electric vehicle rates by June 30, 2024, thereby expanding such benefits statewide.<sup>44</sup>

For rural Vermonters, the economic benefits of owning an electric vehicle will be especially significant. The Vermont Climate Action Plan notes that a typical Vermont rural driver “can save approximately \$1,500 every year by switching from a conventional gasoline car to a comparable electric vehicle, which is even more significant over the life of the vehicle.”<sup>45</sup>

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<sup>36</sup> Initial Vermont CAP at 68.

<sup>37</sup> *Id.* (citations omitted).

<sup>38</sup> See Drive Electric Vermont, EV Operating Cost History, <https://www.driveelectricvt.com/about-evs/cost-of-ownership>.

<sup>39</sup> *Id.*

<sup>40</sup> See, e.g., Title 30 of the Vermont Statutes Annotated.

<sup>41</sup> See Vt. Dept. of Public Service, *Vt. Comprehensive Energy Plan*, 243 (2022); see also 30 V.S.A. §§ 8004-8005 (the Vermont Renewable Energy Standard).

<sup>42</sup> See Vt. Dept. of Public Service, Electric Utility Service Territory Map (2022), <https://vtpsd.maps.arcgis.com/apps/webappviewer/index.html?id=9f9b060d475d4ed49795fdd98aa895fc>.

<sup>43</sup> Green Mountain Power EV Charging Rates (last accessed Sept. 29, 2022), <https://greenmountainpower.com/rebates-programs/electric-vehicles/ev-charging-rates/>; Burlington Electric Department EV Charging Rates (last accessed Sept. 29, 2022), <https://www.burlingtonelectric.com/evrate/>.

<sup>44</sup> See Vermont Laws, No. 55, H.433, Sec. 33(b) (2021), <https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT055/ACT055%20As%20Enacted.pdf>.

<sup>45</sup> See Initial Vermont CAP at 69, discussing Union of Concerned Scientists, *Rural Communities Could Benefit Most From Electric Vehicles* (Nov. 12, 2020), <https://www.ucsusa.org/about/news/rural-communities-could-benefit-most-electric-vehicles>.

Although the upfront costs of some (though certainly not all) electric vehicles are currently higher than comparable gas-powered vehicles, many EV owners already see cost savings over the lifetime of their vehicles. This is because operating expenses—including fuel and maintenance costs—are typically lower for electric vehicles.<sup>46</sup> A recent survey by Consumer Reports found that battery electric vehicle and plug-in hybrid electric vehicle owners pay around half as much to maintain and repair their vehicles compared to owners of conventional cars.<sup>47</sup> The same Consumer Reports study found that fuel savings alone for an electric vehicle compared to a gasoline powered vehicle can be \$4,700 or more over the first seven years.<sup>48</sup> A U.S. Department of Energy study found that the estimated scheduled maintenance cost for a light-duty battery-electric vehicle totals about 6.1 cents per mile, while a conventional gasoline powered vehicle is around 10.1 cents per mile, which amounts to roughly 40% cost savings on maintenance on a per mile basis for electric vehicle drivers.<sup>49</sup>

In addition, electric vehicle owners spend 60% less, on average, by charging with electricity rather than filling up with gas. Taking the full cost of ownership into account, for all nine of the most popular electric vehicles on the market below \$50,000, lifetime ownership costs were “many thousands of dollars lower than all comparable ICE [internal combustion engine] vehicles’ costs, with most EVs offering savings...between \$6,000 and \$10,000.”<sup>50</sup> These savings were even more pronounced for used electric vehicles, which will become increasingly available as electric vehicle adoption rates increase in Vermont. Similarly, in 2021, the Massachusetts Institute of Technology calculated the full lifetime cost of almost every new car model on the market and found that electric cars often had the lowest costs over time.<sup>51</sup> An analysis by Atlas Public Policy found that “total cost of owning the forthcoming electric version of the Ford F-150 (the F150 Lightning) is 17 percent lower than the gas-powered version, the cost of the electric Volkswagen ID.4, an SUV, is 15 percent less than the Honda CRV, a Tesla Model 3 costs almost 5 percent less than a similar Lexus, and the Chevy Bolt costs 6 percent less than a Toyota Corolla.”

Recently, the Inflation Reduction Act was signed into law, which extended the clean vehicle tax credit by lifting the vehicle sales cap, and implemented a new tax credit for the purchase of a used EV. Consumers will now be able to obtain a \$7,500 rebate at the time of purchase for a

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<sup>46</sup> See Drive Electric Vermont, Cost of Ownership, <https://www.driveelectricvt.com/about-evs/cost-of-ownership>.

<sup>47</sup> Chris Harto, Consumer Reports, *Electric Vehicle Ownership Costs: Today’s Electric Vehicles Offer Big Savings for Consumers*, 9 (Oct. 2020) <https://advocacy.consumerreports.org/wp-content/uploads/2020/10/EV-Ownership-Cost-Final-Report-1.pdf>.

<sup>48</sup> *Id.*

<sup>49</sup> Andrew Burnam *et al.*, Argonne National Lab for the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy (EERE), Transportation Office. Vehicle Technologies Office, Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains (Apr. 2021), <https://doi.org/10.2172/1780970>.

<sup>50</sup> See *supra*, note 47.

<sup>51</sup> Veronica Penney, *Electric Cars are Better for the Planet – and Often Your Budget, Too*, NEW YORK TIMES (Jan. 15, 2021), <https://www.nytimes.com/interactive/2021/01/15/climate/electric-car-cost.html>

new clean vehicle, and \$4,000 for a used clean vehicle. And many additional financial incentives exist specifically for Vermonters. State incentives can provide up to \$4,000 for a new electric vehicle, \$5,000 for a used electric vehicle, and an additional \$3,000 under the Replace Your Ride Program.<sup>52</sup> Vermont electric utilities offer additional financial incentives under Tier 3 of the state’s Renewable Energy Standard, with Burlington Electric Company offering up to \$2,900, Green Mountain Power offering up to \$2,500, VPPSA offering up to \$1,400, Stowe Electric Department offering up to \$1,200, Vermont Electric Coop offering up to \$750, and VSECU offering a .5% discount on electric vehicle financing rates.<sup>53</sup> Further financial incentives are also available for home and business charging equipment.<sup>54</sup> Altogether, existing federal, state, and utility incentives provide significant financial support to Vermonters purchasing new or used EVs.

### **VIII. *The ACC II Rule Ensures Strong Standards in Vermont, Regardless of Federal (In)Action***

During the Trump Administration, the National Program on GHG tailpipe emissions and fuel economy standards for passenger vehicles faced an unprecedented attack and rollback that Trump agency appointees called “the largest deregulatory initiative” of that administration.<sup>55</sup> The U.S. EPA, under the Biden Administration, reversed much of the damage to federal and state vehicle emissions programs for MY 2023 through 2026, and the National Highway Traffic Safety Administration updated fuel economy standards for MY 2024 through 2026 to reduce our nation’s reliance on oil and to harmonize with EPA’s program. While it is important for federal progress and collaboration to continue, foundational progress must be made at the state-level given the recent history of changing political winds at the federal-level.

The ACC II standards provide states with long-term certainty that their program will protect public health and the environment. States have the obligation and authority to ensure continued progress occurs on reducing greenhouse gasses and other toxic air pollutants. Providing long-term certainty to the industry and the public, as this proposed rule does, will be important today and in a future with potential federal inaction or backsliding.

### **IX. *Vermont Should Consider Additional Actions Relevant to the ACC II Rule***

The Agency should immediately begin developing and implementing programs that will be eligible for Environmental Justice (EJ) credits under the ACC II Rule. The Agency should also continue to develop and fund complementary policies and programs.

The ACC II standards include flexibility for additional EJ credits—which provides

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<sup>52</sup> See Drive Electric Vermont, Electric Vehicle Incentives, <https://www.driveelectricvt.com/incentives>.

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> Press Release, U.S. Dept. of Transportation, *U.S. DOT & EP Put Safety and American Families First with Final Rule on Fuel Economy Standards* (March 31, 2020), <https://www.nhtsa.gov/press-releases/us-dot-and-epa-put-safety-and-american-families-first-final-rule-fuel-economy>.

manufacturers an incentive to voluntarily increase the number of low MSRP vehicles available, the number of EVs in community car share programs, and the number of EVs coming off lease and going to a disadvantaged community member. While these credit options are voluntary for automakers, to work towards an equitable transition to clean transportation, Vermont should ensure that programs that qualify for the EJ credits are in place. It is vital that Vermont work with environmental justice and community partners to develop and implement programs that are eligible to participate in the Environmental Justice flexibilities, while also developing complementary policies that ensure communities historically overburdened with transportation pollution realize the benefits of zero-emission transportation.

There is a short time frame for states to be able to develop these EJ programs, as automakers can start earning the credits in MY 2024. However, ensuring that all Vermonters, including historically overburdened and low-income communities with transportation pollution, have access to zero-emission vehicles is crucial. Therefore, Vermont should commit to immediately beginning work and engagement with community members and environmental justice organizations to develop and implement EJ programs that will be eligible for these programs.

Further, as there are only limited EJ provisions in the ACC II regulation, Vermont—as part of its engagement with community members and environmental justice organizations—must continue to develop and fund complementary policies and programs that will ensure the benefits of a transition to zero-emission vehicles are realized by all Vermonters, especially those who have been historically overburdened with transportation pollution, by building on the work done to stand up initiatives like MileageSmart, Replace Your Ride, and the multi-unit dwelling EVSE grant program.

### **ADVANCED CLEAN TRUCKS RULE**

In 2020, CARB unanimously approved the ACT Rule. That rule’s requirements gradually increase over time. They also vary across the different vehicle weight classes to reflect the pace at which technology is now, and will become, feasible. By MY 2035, zero-emission truck sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 truck sales, and 40% of truck tractor sales. The ACT Rule does not force Vermonters to purchase a zero-emission truck. It does not require Vermonters to sell their current fossil fuel truck. Nor does it prevent Vermonters from registering a new or used fossil fuel truck. Like the ACC II Rule, the ACT Rule regulates manufacturers.<sup>56</sup>

Vermont is one of 17 states<sup>57</sup> that committed to zeroing out medium- and heavy-duty vehicle pollution no later than 2050 by signing the Multi-State Medium- and Heavy-Duty Vehicle Memorandum of Understanding (MOU).<sup>58</sup> In the MOU, Governor Phil Scott and the other

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<sup>56</sup> See, e.g., Vermont Low and Zero Emission Vehicle Regulations, Proposed Filing (June 24, 2022).

<sup>57</sup> NESCAUM, *NESCAUM Welcomes Nevada's Participation in the Multi-State Zero-Emission Electric Trucks Initiative* (March 31, 2022), <https://www.nescaum.org/documents/nescaum-welcomes-nevada-s-participation-in-the-multi-state-zero-emission-electric-trucks-initiative/>.

<sup>58</sup> Multi-State Medium- and Heavy-Duty Vehicle Memorandum of Understanding, <https://www.energy.ca.gov/sites/default/files/2020-08/Multistate-Truck-ZEV-Governors-MOU->

signatory states identify ACT and the HDO Rules as key strategies for achieving the states' targets. As such, and as endorsed in Vermont's Climate Action Plan,<sup>59</sup> the Agency should adopt those rules by December 1, 2022, as required by Vermont's Global Warming Solutions Act.<sup>60</sup> If Vermont enacts those rules, the State could reduce climate damaging emissions by about 3.70 million metric tons by 2050,<sup>61</sup> which would be a significant step for Vermont in achieving its mandated emissions reductions.

Since California approved ACT, New Jersey, Oregon, Washington, New York, and Massachusetts have all adopted the rule. Other states like Connecticut, Colorado, and Maine are in the process of adopting or considering adopting this rule.

### **I. *The ACT Rule Reduces Toxic Air Pollution***

The ACT Rule is essential to phasing out diesel trucks and buses, which have a disproportionate impact on NO<sub>x</sub> and PM 2.5 emissions that cause significant human health injuries. Vermont has tens of thousands of medium- and heavy-duty vehicles registered in-state, most of which burn fuels that emit toxic air pollution. A recent International Council on Clean Transportation (ICCT) report found that the proposed rules could reduce Vermont's NO<sub>x</sub> emissions by 8,190 short tons and PM<sub>2.5</sub> emissions by 44 short tons by 2050.<sup>62</sup> Such emissions reductions will help avoid deaths, hospital visits, and sick days in Vermont. Similar findings have been made on the regional level. A study in Southern New England shows that Class 2b - Class 8 vehicles make up only 6% of vehicles on the road but disproportionately contribute to 48% of NO<sub>x</sub> and 41% of PM 2.5 emissions.<sup>63</sup> The registered trucks in Vermont likely have a similar disproportionate impact to the trucks studied in Southern New England.

### **II. *The Agency Should Limit Early Action Credits to the Year Before ACT Enforcement***

We ask the Agency to modify the early action credit program and to limit it to only one year before the rule is enforced. The ACT Rule was created to provide flexibility for manufacturers to meet the sales requirements through credit trading mechanisms and early action credits. However, we strongly support limiting early crediting to only one year and to have that year be right before the ACT Rule is enforced. This would minimize the potential negative impact early crediting could have on the rule's effectiveness and, as a result, its benefits. Manufacturers could

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<sup>59</sup> See Initial Vermont CAP at 253.

<sup>60</sup> See, e.g., 10 V.S.A. § 593(b); Act 153, Sec. 4.

<sup>61</sup> International Council on Clean Transportation, *Benefits of adopting California medium- and heavy-duty vehicle regulations under Clean Air Act Section 177*, at 2 (Nov. 2021), <https://theicct.org/wp-content/uploads/2021/12/state-level-hdv-emissions-reg-FS-oct21.pdf>.

<sup>62</sup> ICCT, *Update: Benefits of adopting California medium- and heavy-duty vehicle regulations under Clean Air Act Section 177* (Dec. 2021), <https://theicct.org/publication/state-level-hdv-emissions-reg-fs-dec21/>.

<sup>63</sup> Union of Concerned Scientists, *Southern New England Clean Trucks Report* (2021), <https://www.ucsusa.org/sites/default/files/2021-11/southern-ne-clean-trucks-report.pdf>.

bank early credits for actions that were already planned well before ACT implementation, and those credits could offset important requirements once the rule is enforced, thus disincentivizing manufacturers from increasing production and sales volumes for zero-emission trucks in the program's early years. We thus ask the Agency to modify the early action credit program and to limit it to only one year before the rule is enforced.

### **III. *The Agency Should Adopt a Fleet Reporting Requirement in 2023***

The ACT rule as passed by California and other states had a fleet reporting requirement. Although the fleet requirement is not under consideration in this rulemaking, we ask the Agency to adopt a fleet requirement in a subsequent 2023 rulemaking. Fleet reporting data are critical to tracking progress of fleet transition to zero-emission trucks, and they allow Vermont to identify areas with high rates of freight traffic and, consequently, diesel pollution, which allows Vermont to target clean transportation policies to the communities that need relief most. Fleet reporting will shed light on exploitative labor practices, such as misclassifying drivers as independent contractors. Misclassification is rampant in the trucking industry in other parts of the country, particularly in the drayage segment. Those trucks are also among the oldest and dirtiest vehicles on the road, and present excellent opportunities for zero-emission technology replacements given their short-haul, idling, and stop-and-go operations. Due to misclassification in other parts of the country, many drivers also lack financial resources to upgrade their equipment to reduce diesel pollution or buy a zero-emission truck. A fleet requirement will also help electric utilities make better informed investments today to acquire load that can support the charging infrastructure necessary for medium- and heavy-duty ZEVs in a least-cost manner that enhances load and transmission planning efforts and minimizes ratepayer costs.

### **IV. *The ACT Rule is Technologically Feasible and Will Save Vermonters Money***

As of December 2021, there are over 145 models of zero-emission trucks of all sizes from 30 manufacturers, including 24 heavy-duty truck models,<sup>64</sup> and by the end of 2022 there will be over 500 models of zero-emission trucks.<sup>65</sup> Current range capacity of zero-emission trucks meet or exceed miles driven for most truck routes, and zero-emission trucks have similar hauling capacity to their combustion counterparts. There are 42,723 registered Class 2b - Class 3 trucks in Vermont, and these vehicles represent a majority (67%) of all trucks registered and driven in Vermont.<sup>66</sup> These class segments have the most readily available zero-emission trucks and should be targeted immediately for zero-emission transition. For other class segments, the ACT Rule provides different requirements and flexibilities in line with technology projections and advancements to ensure that the requirements are feasible.

The ACT requirements are actually lower than commitments made by Volvo and Daimler, which

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<sup>64</sup> CALSTART, *Drive to Zero's Zero-emission Technology Inventory (ZETI) Tool Version 7.0* (2022), <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>.

<sup>65</sup> EDF, *The opportunity for near-term electrification of medium- and heavy-duty vehicles* (May 2022), <https://blogs.edf.org/climate411/files/2022/05/FINAL-EDF-HD-ZEV-report-5.17.22.pdf>.

<sup>66</sup> Atlas Public Policy EV Hub, Automakers Dashboard: <https://www.atlasevhub.com/materials/automakers-dashboard>.

hold more than 70 percent of the total market share of class 7-8 trucks. Both of these companies have made international commitments to have all new truck sales be zero-emission by 2040,<sup>67</sup> while the ACT rule only extends through 2035 and requires fewer zero-emission truck sales. Navistar and Paccar make up the remaining market share of class 7-8 trucks and have made similar commitments.

Not only are manufacturers committed to producing more zero-emission trucks, companies and fleet operators across the country are buying them. There are over 140,000 pending orders for commercial zero emission trucks across the country, and more than 85 businesses and institutions have expressed their support for adoption of the rule across states, including several with operations or business interests in Vermont."<sup>68</sup> Green Mountain Power has committed to transitioning its entire fleet to electric vehicles: all cars by 2025, all light-duty trucks by 2028, and all heavy-duty field trucks soon thereafter.<sup>69</sup> Additionally, Walmart, which holds the largest class 8 truck fleet in the nation, committed in 2020 to electrifying their entire fleet by 2040.<sup>70</sup> And Amazon has committed to purchasing 100,000 zero-emission trucks by 2030.<sup>71</sup>

Zero-emission trucks will save fleets money as a result of savings from maintenance and fuel costs. Although the upfront capital costs are higher, most zero-emission truck applications will achieve cost parity with diesel trucks before 2030.<sup>72</sup> Another study by Roush industries found that when considering upfront purchase price alone, by 2027 electric freight trucks and buses will be less expensive than their combustion engine counterparts in all categories except shuttle buses (which are already close to price parity).<sup>73</sup>

## **V. *The ACT Rule Guarantees Vermonters Access to the Global Truck Market***

The global supply of zero-emission trucks is in high demand. That said, demand for internal combustion engine trucks predominates the market. Manufacturers as result, must make strategic

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<sup>67</sup> Electrive, *Major truck makers pledge to go zero-emission by 2040* (Dec. 15, 2020),

<https://www.electrive.com/2020/12/15/major-truck-makers-pledge-to-go-zero-emission-by-2040/>.

<sup>68</sup> Ceres, *85+ Businesses Support State Adoption of the Advanced Clean Trucks (ACT) Rule* (Sept. 24, 2021), <https://sforce.co/3LSBDks>.

<sup>69</sup> Tiana Smith, *Green Mountain Power Walks the Walk When it Comes to EVs*, VT Digger (Sept. 27, 2022), <https://vtdigger.org/2022/09/27/tiana-smith-green-mountain-power-walks-the-walk-when-it-comes-to-evs/>.

<sup>70</sup> Greenbiz, *Walmart drives toward zero-emission goal for its entire fleet by 2040* (Sept. 23, 2020), <https://www.greenbiz.com/article/walmart-drives-toward-zero-emission-goal-its-entire-fleet-2040>.

<sup>71</sup> Amazon, About, (last visited Sept. 29, 2022), <https://bit.ly/3dTm0wq>.

<sup>72</sup> Global Drive to Zero, *New Data Tracks 26% Growth of Zero-Emission Truck and Bus Model Availability in Midst of Economic, Supply Chain Challenges* (March 9, 2022), <https://globaldrivetozero.org/2022/03/09/new-data-tracks-26-growth-of-zero-emission-truck-and-bus-model-availability-globally-in-midst-of-economic-supply-chain-challenges-3-9-22/>.

<sup>73</sup> Vishnu Nair, *et al.*, *Technical Review of: Medium and Heavy-Duty Electrification Costs for MY 2027-2030* (Feb. 2, 2022), <https://bit.ly/3SNr5VN>.



decisions on both how to split their manufacturing capacity, and where to allocate the ZEVs that they make.

Thankfully, the ACT rule helps shape the market in multiple positive ways that benefit Vermont. First, by setting a floor on the required market share of ZEVs, it encourages manufacturers to increase the share of ZEVs that they make, thereby lowering global GHG emissions from the trucking industry. Second, should manufacturers underestimate ZEV demand, the regulation will force manufacturers to allocate limited production and sell these trucks to Vermont. For example, on the light-duty vehicle ZEV standards, a study found that states that had adopted California's light-duty ZEV program had higher EV inventory and stock compared with states that did not have such regulations. This rule is then critical to helping Vermont achieve its environmental quality goals by ensuring that the state can purchase these vehicles.<sup>74</sup> Increasing the market share of ZEVs will decrease noise and criteria air pollution, while reducing state fuel expenditures, and greatly improve the quality of life of Vermont's residents, while doing the state's part in combating the climate crisis.

### **LOW NOX HEAVY-DUTY OMNIBUS AND PHASE II GREENHOUSE GAS EMISSIONS RULES**

The HDO rule strengthens NOx and PM emission standards for new fossil fuel trucks, introduces a new NOx standard for a low-load certification cycle, extends manufacturer warranties, and improves in-use testing to better align with actual vehicle operations and global standards. The HDO rule is expected to cut NOx emissions from heavy-duty vehicles by 75% below current standards beginning in 2024, and by 90% in 2027.<sup>75</sup> It is also expected to reduce secondary PM2.5 formation since NOx is a precursor to secondary PM2.5 formation.<sup>76</sup> In addition to cleaning up NOx, the proposed HDO rule formalizes PM pollution controls, and prevents backsliding by adopting a more stringent standard that aligns with current industry certifications. The Phase II Rule sets more stringent greenhouse gas emissions standards for medium- and heavy-duty engine, vehicle, and trailer manufacturers. It requires manufacturers to improve existing technologies or develop new technologies to meet the GHG emission standards. The HDO and Phase II Rules work with the ACT Rule to meaningfully reduce climate damaging emissions in Vermont by about 3.70 million metric tons by 2050.<sup>77</sup>

While the ACT Rule works year-over-year to gradually increase the share of new zero-emissions truck sales, the HDO Rule curtails toxic air pollution from new diesel vehicles that will continue to be sold in the interim, and the Phase II Rule curtails greenhouse gas emissions. The ACT,

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<sup>74</sup> Sierra Club, *A nationwide study of the electric vehicle shopping experience* (Nov. 2019), [https://www.sierraclub.org/sites/www.sierraclub.org/files/program/documents/2153%20Rev%20Up%20Report%202019\\_3\\_web.pdf](https://www.sierraclub.org/sites/www.sierraclub.org/files/program/documents/2153%20Rev%20Up%20Report%202019_3_web.pdf).

<sup>75</sup> CARB, Heavy-Duty Omnibus Regulation (last visited Sept. 29, 2022), <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>.

<sup>76</sup> Vt. Agency of Nat'l Resources, *Vermont Low and Zero Emission Vehicle Regulations, Proposed Filing* (June 24, 2022).

<sup>77</sup> International Council on Clean Transportation, *Benefits of adopting California medium- and heavy-duty vehicle regulations under Clean Air Act Section 177, 2* (Nov. 2021), <https://theicct.org/wp-content/uploads/2021/12/state-level-hdv-emissions-reg-FS-oct21.pdf>.

HDO, and Phase II Rules are three legs supporting the same stool: together, they will enable Vermont’s long-term vision of a zero-emission medium- and heavy-duty fleet. Together, they will reduce toxic air pollution that harms human health and disproportionately impacts historically marginalized communities. And together the ACT, HDO, and Phase II Rules will meaningfully reduce Vermont’s climate damaging emissions.

### **I. *The HDO Rule is Technically Feasible and Cost-Effective***

When developing the HDO Rule, CARB thoroughly evaluated the technical feasibility of the rule’s emission standards in partnership with the Southwest Research Institute (SwRI), Manufacturers of Emission Controls Association, U.S. EPA, South Coast Air Quality Management District, and engine manufacturers. The testing convincingly demonstrated and modeled cost-effective solutions to meet both 2024 and 2027 standards.<sup>78</sup> Importantly, certification data shows that many manufacturers today certify well below current standards and nearly meet the 2024 requirements.<sup>79</sup> Moreover, several engine manufacturers have already committed to developing compliant MY 2024 engines and are actively making plans to meet the MY 2027 requirements.<sup>80</sup>

CARB staff has demonstrated the technical feasibility of both the 2024 and 2027 proposed NOx standards through several years of extensive development and testing in partnership with SwRI.<sup>81</sup> The development and testing, together with related work by manufacturers, show that the proposed 2024 standards can be met using a combination of improved engine calibration, the newest configuration of after-treatment devices, and urea injection. The 0.02 grams per brake horsepower-hour NOx standard proposed for MY 2027 and subsequent years can be achieved with further refinements to the aftertreatment, and well-established powertrain technologies, including cylinder deactivation – a technology widely used in passenger vehicles.<sup>82</sup> Moreover, opposed-piston engine testing reduced NOx emissions below the MY 2027 requirement in a Peterbilt tractor using conventional downstream aftertreatment equipment.<sup>83</sup> A cost assessment showed that opposed-piston engines “cost 11 percent less than conventional engines of the same

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<sup>78</sup> CARB, *Technological Feasibility of Proposed Standards*, [https://ww3.arb.ca.gov/regact/2020/hdomnibuslow NOx /appi.pdf](https://ww3.arb.ca.gov/regact/2020/hdomnibuslow%20NOx/appi.pdf).

<sup>79</sup> CARB, *Public Hearing to Consider the Proposed Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments, Staff Report - Initial Statement of Reasons* (June 23, 2020), <https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/isor.pdf>

<sup>80</sup> CARB, *Responses to Comments on the Environmental Analysis for THE PROPOSED HEAVY-DUTY ENGINE AND VEHICLE OMNIBUS REGULATION AND ASSOCIATED AMENDMENTS*, [https://ww3.arb.ca.gov/regact/2020/hdomnibuslow NOx /res20-23attbrtc.pdf](https://ww3.arb.ca.gov/regact/2020/hdomnibuslow%20NOx/res20-23attbrtc.pdf).

<sup>81</sup> *Id.* at ES-12

<sup>82</sup> *Id.* at III-12 to III-27.

<sup>83</sup> Achates Power, *Achates Power Opposed-Piston Heavy-Duty Diesel Engine Demonstration Performance Results – Ultralow NOx without additional hardware* (Dec. 2022), <https://achatespower.com/wp-content/uploads/2020/12/Achates-Power-Opposed-Piston-Heavy-Duty-Diesel-Engine-Demonstration-Performance-Results-Ultralow-NOx-without-additional-hardware.pdf>.

power and torque” with substantially less NO<sub>x</sub> and CO<sub>2</sub> emissions.<sup>84</sup>

## II. *The HDO Warranty and Lifetime Mileage Requirements Provide Strong Benefits*

The HDO rule also updates warranty and lifetime mileage requirements. Heavy-duty diesel engines last well beyond the current useful lifetime; an issue that extends to the warranty period, where the standard 100,000-mile warranty requirement is only a small fraction of the expected lifetime of the engine and is well behind typical manufacturer warranties and extended warranties of 250,000 and 500,000 miles.

The useful life is critical to ensure adequate testing such that emissions controls are functional for the life of the engine. The warranty period is even more important because it can minimize tampering or disrepair and can shift the cost of failures onto the manufacturer, rather than the driver. Repair costs and downtime can be a significant burden for drivers, and survey data have shown that there is a significant interest in coverage that better reflects the operational lifetime of the vehicle.<sup>85</sup> Nearly one-quarter of respondents in that study already opt for an extended warranty, with a substantial share of those respondents choosing warranties that exceed the current useful-life requirements of the engine. A majority of owner-operators suggested future warranty coverage should meet or exceed 500,000 miles, which is well above the current minimum. This is borne out in more recent analysis of the market, which shows that 85% of the market already opts for an extended warranty, with just about half of those users opting for warranty coverage of at least 500,000 miles.<sup>86</sup> The HDO Rule significantly increases both the warranty and useful life length, which increases the guaranteed mileage over which emissions controls will be active, including by reducing costs for operators to reduce levels of mal-maintenance.

The timeline set out by the HDO Rule does not present undue constraints. The NO<sub>x</sub> standards preceding the recent HDO rule, which largely mirrored the EPA standards, were some of the most technology-forcing emissions standards ever adopted—requiring the development of an entirely new catalyst, new particulate filters, and a system that had to track the amount of NO<sub>x</sub> in the tailpipe, an amount that varies greatly under different driving conditions and integration of an advanced and complex engine exhaust gas recirculation system. Those new technological elements all had to work in concert without significantly impacting fuel consumption. Despite these challenges, manufacturers were readily able to meet these standards in a timely manner. In contrast, “meeting the envisioned CARB 2024 targets would require very modest increases in technology complexity and costs.”<sup>87</sup> Thus, compliance can reasonably be achieved on the HDO

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<sup>84</sup> *Id.* at 2.

<sup>85</sup> Kerschner, B., and D. Barker, CARB, *Survey and analysis of heavy-duty vehicle warranties in California* (Dec. 2017), <https://ww3.arb.ca.gov/regact/2018/hdwarranty18/apph.pdf>.

<sup>86</sup> CARB, *Staff Report on the Warranty Cost Study for 2022 and Subsequent Model Year Heavy-Duty Diesel Engines* (2022), [https://ww2.arb.ca.gov/sites/default/files/2022-01/warranty\\_cost\\_study\\_final\\_report.pdf](https://ww2.arb.ca.gov/sites/default/files/2022-01/warranty_cost_study_final_report.pdf).

<sup>87</sup> International Council on Clean Transportation, *Estimated cost of diesel emissions-control technology to meet the future California low NO<sub>x</sub> standards in 2024 and 2027* (May 20, 2020), <https://theicct.org/publications/cost-emissions-control-ca-standards>.

Rule's timeline.

### **III. *It is Unlikely the Rules Will Incentivize Vermonters to Buy Dirtier Vehicles Now***

History demonstrates that pre-buying dirtier vehicles in response to, or anticipation of, earlier emissions standards did not occur. The “pre-buy in response to 2007 criteria pollutant standards [was found] to be approximately symmetric, short-lived, and small in volume relative to previous estimates” – indicating that fears of mass purchases of polluting vehicles before a new standard takes effect are unlikely to be realized.<sup>88</sup> The bottom line is that—rather than seeing fleets buy dirtier, ostensibly cheaper vehicles in a panic—there is no meaningful uptick in polluting purchases as a result of new standards. This makes sense. Fleets recognize the cost savings over time of cleaner vehicles and do not seem inclined to ignore those benefits, or to reap the marginally lower purchase price of more polluting vehicles in the interim.

### **CONCLUSION**

The Agency has legal authority under 10 V.S.A. sections 567 and 558, and under section 177 of the U.S. Clean Air Act<sup>89</sup> to adopt the Rules, which are described in the Vermont Climate Action Plan as key ways to reduce transportation emissions and to meet the Global Warming Solutions Act's reduction requirements.<sup>90</sup> Under Vermont law, the Agency is required to adopt these Rules by December 1, 2022.<sup>91</sup> Doing so is also good policy. As discussed, the urgency of the climate crisis and the ongoing public health harms inflicted on Vermonters weigh heavily in favor of adopting the ACC II, ACT, HDO, and Phase II Rules without delay. The Agency also has the authority to make several minor and common-sense adjustments to the Rules. Under ACC II, we urge the Agency to ensure that programs qualifying for EJ credits are quickly put in place, and that the Agency commits to immediately engaging with community members and environmental justice organizations to develop and implement eligible EJ programs. Under the ACT Rule, we urge the Agency to adjust early action credits to ensure that the sales requirements do not lose their effectiveness, and we urge the Agency to initiate a separate rulemaking in 2023 to adopt a fleet reporting requirement.

We thank you and the Agency for your hard work in preparing these regulations and shepherding them forward. We also look forward to collaborating with you and discussing the important and beneficial ways these Rules benefit Vermonters.

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<sup>88</sup> Katherine Rittenhouse and Matthew Zaragoza-Watkins, *Strategic Response to Environmental Regulation: Evidence from U.S. Heavy-Duty Vehicle Air Pollution Regulations*, MIT CEEPR, 33 (2016).

<sup>89</sup> *Codified as* 42 U.S.C. § 7507.

<sup>90</sup> *See* 10 V.S.A. § 593(b); Act 153, Sec. 4; Initial Vermont CAP at 253.

<sup>91</sup> *See id.*

*Sincerely,*

Robb Kidd  
Vermont Conservation Program Manager  
Sierra Club Vermont

Jordan Giaconia  
Public Policy Manager  
Vermont Businesses for Social Responsibility

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Energy & Climate Program Director  
Vermont Natural Resources Council

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# SIERRA CLUB

## VERMONT CHAPTER

November 13, 2022,

Hon. Mark MacDonald (Chair) and Members of the Legislative Committee on Administrative Rules  
Vermont State House  
Montpelier, Vermont 05602

**RE: 22-P21 - Agency of Natural Resources/Vermont Low Emission Vehicle and Zero Emission Vehicle Rules**

Dear Chairperson MacDonald and Legislative Committee on Administrative Rules Members:

On behalf of our Vermont members and thousands of other Vermonters concerned about addressing climate change, the Sierra Club is stating its support for Vermont to adopt the proposed Vermont Low Emission Vehicle and Zero Emission Vehicle Rules (the “Rules”). The Vermont Air Quality & Climate Division has done a comprehensive and detailed review of the Rules and has gone above and beyond to engage the public. The Legislative Committee on Administrative Rules (“LCAR”) has jurisdiction to ensure the Rules meet legislative intent. I write today to state that I believe the Rules have done so. Technical comments, citizen engagement letters, and group letters that Sierra Club has signed with many other organizations, businesses, and community leaders substantiate that belief. Those materials are part of the public record and are appended hereto for your review.

It is important to note that the Agency of Natural Resources has the legislative authority to promulgate rules under 10 V.S.A. Sections 558, 567, and 554.

*10 V.S.A. § 558 states: “The Secretary may establish such emission control requirements, by rule, as in his or her judgment may be necessary to prevent, abate, or control air pollution. The requirements may be for the State as a whole or may vary from area to area, as may be appropriate to facilitate accomplishment of the purposes of this chapter, and in order to take necessary or desirable account of varying local conditions.”*

*10 V.S.A. § 567(a) states, in relevant part: “The Secretary in conjunction with the Department of Motor Vehicles may provide rules for the control of emissions from motor vehicles.”*

*10 V.S.A. § 554 states, in relevant part: “[The ANR] Secretary shall have power to . . . Adopt, amend, and repeal rules, implementing the provisions of this chapter.”*

The Global Warming Solutions Act (“GWSA”), Vt. Laws No. 153 (2020), granted statutory authority for rulemaking to the Agency of Natural Resources to promulgate rules to meet Vermont's carbon emission reduction requirements.

*10 V.S.A. § 593(a) states that “The Secretary of Natural Resources shall adopt rules pursuant to 3 V.S.A. chapter 25 consistent with the Vermont Climate Action Plan.”*

*10 V.S.A. § 593(b) states “The Secretary of Natural Resources is directed to adopt rules to meet the 2025 emissions reductions by December 1, 2022.”*

The Rules are specially named in Vermont’s Climate Action Plan (“CAP”) as key measures that must be adopted to meet Vermont’s greenhouse gas emissions reduction requirements,<sup>1</sup> which were set by the Legislature in the GWSA.<sup>2</sup>

The Rules meet the legislative intent to reduce noxious emissions and greenhouse gas emissions. Coupled with the Legislature’s previous bold investments in EV infrastructure and EV incentives for low- and moderate-income Vermonters, these Rules will help to ensure that Vermonters have access to cost-saving and carbon-cutting cleaner vehicles by requiring auto manufacturers to annually ratchet up their delivery of EVs into Vermont.

In summation, we request that LCAR accept the Rules as submitted by the Agency of Natural Resources. We appreciate the Legislature’s commitment to reducing air and climate pollution in ways that are cost-effective and equitable. We also very much appreciate the thorough and important work of the Agency of Natural Resources to respond to the state’s climate commitments in ways that save money, improve public health, grow jobs, and advance equity outcomes. These Rules reflect Vermont’s commitments and must be adopted to meet our moral and legal obligations to address climate change. We look forward to greater collaboration among the Legislature, Administration, organizations like mine, and all Vermonters as we work to do our part to address the existential challenges of climate change.

Sincerely,

Robb Kidd  
Vermont Siera Club  
Conservation Program Manager  
(802) 505-1540

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<sup>1</sup> [Vermont Climate Action Plan](#), page 253.

<sup>2</sup> 10 V.S.A. § 578(a).



Agency of Natural Resources Central Office  
1 National Life Drive  
Davis 2  
Montpelier VT 05620-3901

August 3, 2022

Subject: Advanced Clean Trucks (ACT), Advanced Clean Cars (ACC) II, Low NOx Heavy-Duty Omnibus, and the Phase II Greenhouse Gas Emissions Standard rulemaking delay.

Dear Secretary Julie Moore and Interagency Committee on Administrative Rules Members,

On behalf of the undersigned businesses, health professionals, organizations, and individuals that represent thousands of Vermonters, we are writing to express our strong support for the Advanced Clean Trucks (ACT), Advanced Clean Cars (ACC) II, Low NOx Heavy-Duty Omnibus, and the Phase II Greenhouse Gas Emissions Standards rules (the "Rules"). We urge that the State adopt these Rules by the end of 2022 so that increasing numbers of zero-emission vehicles will be available to Vermonters as soon as possible.

As you know, transportation pollution is the largest source of climate-disrupting and toxic air pollution in Vermont. The transportation sector accounts for [39.1% of Vermont's greenhouse gas emissions](#). Fossil fuel-powered cars, trucks, and buses account for the majority of these emissions. With the recent setbacks in implementing the Transportation Climate Initiative Program in the Northeast, and the lack of any other clear policy or regulatory tools to achieve certain, significant pollution reductions in the transportation sector, adopting the Rules in a timely fashion is even more critical to meeting Vermont's required emission reductions. Emissions disproportionately impact low-income populations and communities of color. Some of those impacts include higher rates of asthma, bronchitis, cancers, and premature deaths. Furthermore, Vermonters are disproportionately burdened with volatile gasoline pricing because Vermonters are more dependent on personal vehicles than many other Americans.

The ACT rule will require that all new sales of medium and heavy-duty vehicles (MHDVs) – transit and school buses, freight, utility, delivery, and fleet vehicles with a Gross Vehicle Weight Rating (their fully-loaded weight) of more than 8,500 pounds be 40 - 75% zero-emission by 2035, and the ACC II rule will require that all sales of new passenger vehicles be 100% zero-emission by 2035. These requirements will help ensure that Vermonters have less air pollution and more zero-emissions vehicles available to them while also helping Vermont achieve its climate requirements under the Global Warming Solutions Act, including net-zero emissions by 2050. The Vermont Climate Council adopted the Vermont Climate Action Plan, which included the Rules as important policies and strategies for Vermont to reach its net-zero targets.

Adopting the Rules this year will be critical in beginning to accrue all the associated climate, health, and economic benefits of a just transition away from fossil fuels. A [study](#) by the International Council on Clean Transportation shows that the ACT, NOx Omnibus and Phase II rules will improve Vermont's air quality by reducing Nitrogen Oxide (NOx) and PM 2.5 by 8,190 and 44 short tons, respectively, and reducing Carbon Dioxide equivalent (CO2e) by 3.70 million metric tons by 2050. Although there are no studies on the impacts of ACC II program in Vermont, in California, the ACC II program is anticipated to

reduce emissions in the passenger vehicle fleet by 57,090 tons of reactive organic gasses, 83,850 tons of oxides of nitrogen, and 5,330 tons of particulate matter (PM2.5) cumulatively by 2040 relative to a baseline without the proposed regulations. California also expects ACC II proposals to reduce cumulative greenhouse gas emissions by an estimated 440 million metric tons of carbon dioxide from 2026 to 2040.

The Clean Air Act requires a two-year lead time for states adopting the Rules before enforcement can officially begin. The first applicable model year for ACT begins in 2024, while the first applicable model year for ACC II begins in 2026. If these Rules are adopted in 2022, Vermont will be able to enforce the requirements for model years 2026 for both of these Rules. Delaying adoption means that Vermont will continue to miss out on the annual requirements and subsequent benefits these Rules provide, and Vermonters will miss out on access to zero-emissions vehicles they would otherwise be able to take advantage of. There is no time left for delay.

As Vermont proceeds with rule implementation we must ensure that auto manufacturers are not given opportunities to evade supplying the required levels of zero-emission vehicles, and that credits for previous sales do not count for the new targets. In some cases, an auto manufacturer may have the ability to invest in other programs designed to reduce transportation emissions if sales targets are not reached. In those circumstances, we urge investments in equity-based programs such as Mileage Smart and Replace Your Ride to be the default, however, those investments must be substantial to make up for the shortfalls in reaching the required carbon emission reductions.

By adopting the Rules, Vermont can simultaneously improve air quality, lower transportation costs, protect our children and communities, address environmental health inequities, and reduce greenhouse gas emissions. Respectfully, we urge you to adopt the ACT, NOx Omnibus, Phase II and ACC II Rules this year, and we appreciate your commitment to ensuring Vermont meets its legal and moral obligation to do its part on the climate crisis. This program will certainly be key to that.

Sincerely,

Robb Kidd, Conservation Program Manager, Vermont Sierra Club

Ben Ederly Walsh, Climate & Energy Program Director, Vermont Public Interest Research Group

Dan Fingas, Vermont Movement Politics Director, Rights and Democracy

Dan Quinlan, Chair, Vermont Climate Health Alliance

Dave Rapaport, Social Mission Officer, Ben & Jerry's

David Mears, Executive Director, Audubon Vermont

Debra Stoleroff, Steering Committee Chair, Vermont Yankee Decommissioning Alliance

Elena Mihaly, Vice President and Director, Conservation Law Foundation Vermont

Jake Elliott, Impact Partnership Manager, SunCommon

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Johanna Miller, Energy and Climate Program Director/VECAN Coordinator

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Julia Scott, CEO, J.Scott Marketing

Kathy Harris, Clean Vehicles and Fuels Advocate, Climate & Clean Energy Program, Natural Resources Defense Council

Kati Gallagher, Coordinator, Transportation for Vermonters  
Katie McCurdy, Founder, Pictal Health  
Kenneth Allen, President VtPHA  
Lauren Hierl, Executive Director, Vermont Conservation Voters  
Meghan Ksiazek- Vice President, Turtle Fur  
Nancy Rice, Randolph Center, VT, VT Yankee Decommissioning Alliance Treasurer  
Patricio Portillo, Senior Advocate, Climate & Clean Energy Program, Natural Resources Defense Council  
Paul Lesure, President, Green Mountain Solar  
Peggy O'Neill-Vivanco, Coordinator, Vermont Clean Cities Coalition  
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Eva Zaret, Marshfield, VT  
Gretchen Elias, Montpelier VT  
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Sebbi Wu, Burlington, VT  
Seth H. Frisbie, Ph.D., East Calais, VT, Professor Emeritus of Chemistry  
Tyler Merritt, Richmond, VT  
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William April, Waterbury Ctr., VT, Concerned Citizen

cc: Governor Phil Scott, Melissa Mazza-Paquette, House Transportation Chair Diane Lanpher