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September 30, 2022

RE: Comments on Proposed Amendments to the Air Pollution Control Regulations, Low Emission Vehicle and Zero Emission Vehicle Regulations

Secretary Moore,

Thank you for the opportunity to comment on the "Proposed Amendments to the Air Pollution Control Regulations, Low Emission Vehicle and Zero Emission Vehicle Regulations" (the "Proposed Regulations").

The Agency of Natural Resources ("ANR") has proposed an amendment to its low emission vehicle ("LEV") and zero emission vehicle ("ZEV") rules, which incorporate by reference California's motor vehicle emission standard regulations[1] and its ZEV mandate. Specifically, ANR proposes to amend its existing rules by adopting California's Advanced Clean Cars II (which amends Advanced Clean Cars I, currently in effect), Advanced Clean Trucks, Low NOx (oxides of nitrogen) Heavy-Duty Omnibus Regulations, and California's Phase 2 Greenhouse Gas ("GHG") Rule. While this ambitious plan is a laudable effort, Vermont's air quality goals need not be met through the sacrifice of consumer choice and affordability.

INTRODUCTION

Vermont's Global Warming Solutions Act charges ANR with the challenge of providing safe, reliable energy, while reducing GHG emissions economy wide. To achieve these goals, ANR should take an "all-of-the-above" approach that fairly and objectively quantifies lifecycle carbon emissions regardless of fuel type, neither underestimating the GHG emission sources involved in EVs nor overlooking significant reductions attributable to liquid transportation fuels. Under the Proposed Regulations, Vermont runs the risk of exaggerating the carbon reductions from EVs, while underestimating the benefits of

[1] The LEV Rules set standards for emissions of criteria air pollutants and greenhouse gases from passenger cars, light-duty trucks, and medium- and heavy-duty vehicles and engines that are delivered for sale or placed in service in Vermont. The ZEV Rules set standards that ultimately require auto manufacturers to deliver more electric vehicles to Vermont.

various liquid fuels. As a result, Vermont may miss the opportunity for greater actual carbon reductions at even lower costs.

As Vermont plans its carbon reduction strategy in the transportation sector, it will need a broad and inclusive approach to ensure reliability in the fuel supply chain for transportation fuels. In its rulemaking, ANR should consider the implications that a strategy focused solely on electrification may have on community decision-making, consumer choice, and the unintended consequences that the reliance on electrification presents. Finally, social and economic justice cannot be achieved through mandates that restrict consumer choice and increase costs for all Vermonters. Preserving consumer choice and ensuring the best cost alternative while lowering GHG emissions is key to meeting the requirements in the Global Warming Solution Act.

BACKGROUND

ANR recommends an aggressive mix of policies oriented toward increasing sales of ZEVs. The ZEV regulations' focus favors battery electric vehicles ("BEVs") and proposes a complete shift to 100% light-duty ("LD") ZEV sales by 2035 through adoption of California's Advanced Clean Cars II ("ACC II") program. In the mid- and heavy-duty ("MHD") sector, ANR recommends adoption of California's Advanced Clean Trucks ("ACT"), Low NOx Heavy-Duty Omnibus Regulations, and California's Phase 2 GHG Rule.

COMMENTS

Transportation Sector Decarbonization Should Embrace All Technologies

While ZEVs may provide options to help reduce GHG emissions, reliance on those technologies alone ignores the full lifecycle GHG emissions of ZEVs and the benefits of low-carbon liquid fuels and other emerging technologies. Other technologies and fuel sources can result in equal or greater reductions in GHGs than ZEVs, while offering more consumer choice. ANR should approach GHG reductions in the transportation sector with an eye toward an affordable and equitable approach that incorporates all potential options, including liquid fuels, to ensure that Vermonters maintain economic security, safety and reliability. ZEV mandates present significant risks to the stability of the transportation sector, ranging from raw material availability to charging infrastructure accessibility to grid reliability. ZEVs are also more expensive on average than their internal combustion engine ("ICE") vehicle counterparts and unaffordable for many households. In the first calendar quarter of 2022, the average price of top-selling BEVs in the U.S. was about $20,000 more than the average price of top-selling ICE vehicles.[2]

[2] Registration-weighted average retail price for the 20 top-selling BEVs and ICE vehicles in the U.S. S&P Global, *Tracking BEV prices – How competitively-priced are BEVs in the major global auto markets?*, May 2022.

Vermont should evaluate the merits of all fuels and vehicle technologies on a full lifecycle basis. The National Bureau of Economic Research has acknowledged that "…despite being treated by regulators as 'zero emission vehicles', EVs are not necessarily emissions free."[3] Battery production, transport, disposal and recycling generate emissions and waste impacts and present national security concerns—including resource access, supply chain vulnerability, and cybersecurity risks for charging stations.[4] The GHG emissions associated with these activities are material, and the failure to include them in ANR's impact statement and supplemental information will result in Vermont undercounting GHG emissions from EVs in the transportation sector.

The Proposed Regulations fail to consider the many advanced technology efforts that are underway to reduce GHG emissions from the transportation sector, including the advances in low-carbon fuels and technologies for on-board capture of combustion-related carbon dioxide ("CO_2") emissions for subsequent use or permanent sequestration. By embracing an all-encompassing approach to decarbonization that includes low-carbon fuels and on-board CO_2 capture, Vermont can identify more efficient and cost-effective pathways to reduce emissions and create incentives for emerging emissions reduction technologies.

Electrification Mandates in the Transportation Sector May Spur Grid Reliability Issues

Vermont should consider electrical grid reliability issues that are prevalent and on-going in California. California residents are frequently asked to reduce their electricity use during peak hours, including charging of EVs, to avoid widespread blackouts in the midst of a heat wave. With increasing reliance on solar and wind generation, California has struggled with reliability hazards due to power inverters that serve solar and wind farms not being able to "ride-through" short-term disturbances, as occurred on four separate occasions between June and August 2021.[5] For communities that lack back-up power resources, a loss of electricity in an all-EV world means a loss of personal mobility and an inability to get to and from work or school, secure food or obtain medical support.

Since Vermont is a winter peaking state, this issue is of significant concern during the coldest weeks of the year as well. Vermont has experienced a fair number of severe weather events that "have had profound impacts on infrastructure. Hurricane Irene was declared a federal emergency in nearly all counties and left well over 100,000 residents without power, while the Great Ice Storm of 1998 provided constant precipitation for several days. These kinds of events are unlikely to be isolated", and should be considered

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[3] *See* http://www.nber.org/papers/w21291

[4] *See* https://www.nationalobserver.com/2021/01/21/opinion/electric-cars-have-dirty-little-recycling-problem-their-batteries.

[5] Behr, Peter and Plautz, Jason, *Grid monitor warns of U.S. blackouts in 'sobering report'*, E&E News (May 19, 2022) and North American Electric Reliability Corporation *2022 Summary Reliability Assessment* (May 2022).

by ANR.[6] Severe weather incidents like these have contributed to Vermont's ranking in the fourth quartile amongst U.S. states for the total time and frequency of utility interruptions, and in the third quartile for the average time required to restore service.[7]

Reliance on EVs may have unintended, negative consequences, especially in relation to the electricity generating sector. Spurring such an increase in load and demand to the electricity generating sector, which intermittent renewable generation such as solar and wind cannot meet during peak demand,[8] will cause the Vermont Electric Power Company ("VELCO") to disconnect "EV load . . . for a number of hours during peak periods".[9] According to VELCO's 2021 Long-Range Transmission Plan, "it was expected that the [Vermont transmission] system would fail to meet reliability criteria in the 20-year horizon under the high load forecast" due to the acerbating electrification of heating and transportation.[10] Vermont's bulk system meets current needs, but as demand increases from electrification, including EVs and building electrification, reliability margins will continue to thin.

According to VELCO's *2021 Vermont Long-Range Transmission Plan*:

> "[D]ue to the performance characteristics of in-state generation, Vermont has relied heavily on its transmission network to import power from neighboring states. Following the shutdown of the Vermont Yankee generation plant in 2014, Vermont has become a net importer at all hours from New York, New Hampshire, Massachusetts, and Canada in order to meet the state's load requirements. Because of the disproportionate reliance on solar PV generation, high imports during peak load conditions will continue over the long term".[11]

As other states implement plans to increase their respective reliance on electrification in the home heating and transportation sectors, the net supply of electricity to the New England states will be further constrained and less reliable. According to VELCO, "[t]he demand associated with EVs is predicted to become a noticeable element of the load in

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[6] Vermont Agency of Transportation, *NEVI Plan* at 50 (August 1, 2022).

[7] SAIDI, SAIFI and CAIDI reliability metrics. U.S. EIA, *State Electricity Profiles – Vermont*, 2020.

[8] VELCO, *2021 Vermont Long-Range Transmission Plan* at 16-17 (on solar, stating "Since solar PV effects have shifted the Vermont summer demand peak to after sundown, this analysis assumed that incremental solar PV would contribute 0 MW at the summer peak hour. Similarly, since winter peaks occur after dark, solar PV also contributes 0 MW at the winter peak hour") (also stating "Vermont generators are small and the vast majority of them are not base load generators, which are expected to run at or near full capacity nearly every day for hours at a time").

[9] VELCO, *2021 Vermont Long-Range Transmission Plan* at 6, https://www.velco.com/assets/documents/2021%20VLRTP%20to%20PUC_FINAL.pdf

[10] *Id.*

[11] *Id.* at 18.

the mid- to long-term".[12] Moreover, in Vermont's National Electric Vehicle Infrastructure ("NEVI") Plan dated August 1, 2022, the Vermont Agency of Transportation specifically warns that "[u]nmanaged or unplanned for EV charging could cause utilities to incur significant costs to maintain grid reliability and create challenges for grid operators."[13]

ANR should not make the same mistake as California by relying entirely on electrification to reduce GHG emissions from transportation. Rather, the Proposed Regulations should reflect a more varied approach to decarbonization, including state market incentives for a variety of biofuels. Mandates can have unintended consequences, and ANR should embrace all potential options for reducing GHG emissions in the transportation sector.

ANR Must Provide a More Transparent and Reasoned Economic Analysis

ANR has not prepared a comprehensive costs model with respect to the Proposed Regulations. Without doing so, ANR cannot adequately consider alternatives that emphasize affordability alongside emissions reductions. ANR's analysis also fails to convey the consequences and difficulties associated with the major technology transformation required under the proposal. For example, ANR does not quantify any indirect impacts associated with the Proposed Regulations, and neglects less defined risks and potential impacts to Vermonters. Additionally, ANR has not estimated what Vermont's total costs of compliance would be under the Proposed Regulations. Neither has ANR provided any discussion quantifying impacts to Vermont's job market. Further, ANR's analysis in support of the Proposed Regulations is inconsistent and incomplete. For example, ANR's "Summary Document" states that "ACC[]II is not a requirement that consumers purchase an electric vehicle… ACC II is a requirement imposed *solely* on auto-manufacturers to deliver a certain annual percentage of ZEVs to Vermont".[14] But in ANR's "Supplemental Information", ANR states "[t]he proposed regulation *will have an impact on individual vehicle owners* in Vermont in the form of operation and ownership costs", without estimating what those costs are expected to be.[15]

Moreover, ANR merely relies on and extrapolates from California's data and analysis without adequately considering differences in scale, climate, terrain, and state economies that will have profound impacts on Vermont's adoption and experience implementing the proposed rules. State specific and regional factors are material and must be considered. In sum, due to ANR's urgency to expediently adopt the Proposed Regulations to stay on

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[12] *Id.* at 22.

[13] Vermont Agency of Transportation, *State of Vermont National Electric Vehicle Infrastructure Plan* at 53 (August 1, 2022).

[14] ANR, *Regulation Summary Document* at 3 (emphasis added).

[15] ANR, *Supplemental Information for Vermont's Low Emission Vehicle and Zero Emission Vehicle Proposed Rules* at 6 (emphasis added).

California's implementation schedule and to maintain alignment with other states that have adopted California's ZEV regulations under § 177 of the Clean Air Act ("CAA") (42 U.S.C. § 7507), ANR is rushing its consideration and the passage of the California rules without performing an independent analysis to ensure the proposed rules are properly and thoroughly vetted for application in Vermont. ANR should present a transparent, technology-neutral approach that allows for innovation that would better serve Vermont's most vulnerable communities. For example, Vermont Agency of Transportation highlights practical challenges inherent to EV adoption in its NEVI Plan, stating that "[d]ue to Vermont's mountainous terrain and cold winters, [EV] buses are not always able to reach the 100-mile range that can be achieved in optimal driving conditions. The longest route piloted so far extends 90-miles in a day, necessitating the driver to recharge midday to complete the route".[16] ANR falls short in communicating such challenges associated with singular reliance on electrified transport in its assessment of the Proposed Regulations.

Vermont stakeholders should also have an opportunity to evaluate the data, costs, and assumptions underlying such an alternatives analysis before ANR finalizes its proposed rulemaking. It is critical from the outset to design Vermont's transportation program to minimize the potential for price shocks and supply disruptions. This is of particular concern regarding the ACT regulation. As stated in comments submitted by the Vermont Truck and Bus Association, this regulation will result in a reduction in payload (and increased freight costs) due to the added weight of the battery. Range issues, as well charging locations and the amount of time needed to charge, will increase the cost of delivering goods and services in Vermont from a California compliant truck.

CONCLUSION

The proposed sale requirements that mandate a shift to EVs at the expense of ICE vehicles will significantly impact supply chains, consumer costs, electric power infrastructure, domestic energy security, and will have international consequences. ANR must carefully consider the implications if reality cannot keep pace with the ambitions of the Proposed Regulations. Other states are facing similar questions and deciding to forge their own paths rather than adopt California's program:

- Virginia prefiled legislation on September 6 to repeal its 2021 adoption of California's ZEV program, citing a preference to "put Virginians back in charge of Virginia's auto emission standards and its vehicle marketplace."[17]
- Colorado has indicated that it will not adopt ACC II, citing "While the governor shares the goal of rapidly moving towards electric vehicles, he is skeptical about

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[16] *Id.* at 59.

[17] House Speaker Todd Gilbert, *see* https://apnews.com/article/technology-california-pollution-climate-and-environment-e661fe8026ab9ed8d5d521a14bee0858

requiring 100% if cars sold to be electric by a certain date as technology is rapidly changing."[18]

- Minnesota, similarly, is not planning to adopt ACC II, with Governor Tim Walz offering "We are not California. Minnesota has its own plan."[19]

ANR should support and foster technological innovation in the transportation sector. Doing so could create a foundational framework that would attract more investment into the market which would help Vermont achieve its long-term climate goals. ANR should evaluate an alternative that prioritizes least cost emission reductions across the economy by relying more heavily on technology neutral approaches.

Thank you for the consideration of our comments.

Sincerely,

Associated General Contractors of Vermont
Associated Industries of Vermont
Barre Granite Association
Northeast Agribusiness & Feed Alliance
Vermont Fuel Dealers Association
Vermont Retail & Grocers Association

[18] Colorado Energy Commission, *see* https://apnews.com/article/technology-california-clean-air-act-vehicle-emissions-standards-eebb48c13e24835f2c5b9cb56796182a.

[19] *Id.*