August 28, 2023

Via Electronic Submission to: rulecomments.dep@maine.gov

Maine Department of Environmental Protection
Lynne Cayting
17 State House Station
Augusta, ME 04333-0017
(207) 287-7599

Re: Comment on Chapter 127-A: Advanced Clean Cars II Program

To Whom It May Concern:

Please find below the comments from Valero on the proposed adoption of California's Advanced Clean Cars II ("ACC II") program in Maine. Valero appreciates the opportunity to provide feedback regarding Maine Department of Environmental Protection's ("DEP's") consideration of ACC II.

Introduction

Valero Energy Corporation and its subsidiaries (collectively, "Valero") submit these comments as part of DEP's stakeholder engagement regarding ACC II. In addition to being the nation's largest independent refiner of petroleum fuels, Valero is one of the top producers of domestic biofuels. Valero was the first traditional petroleum refiner to enter large-scale ethanol production and is now the second largest ethanol producer in the U.S. Through our Diamond Green Diesel joint venture with Darling Ingredients, and following a recent expansion project to construct a new plant in Port Arthur, Texas, we are currently the leading renewable diesel producer in the world. Our Board recently approved a project to commission production of sustainable aviation fuel, and we are actively pursuing carbon sequestration opportunities in the United States that will substantially lower the carbon intensity of the ethanol we produce.

Comments

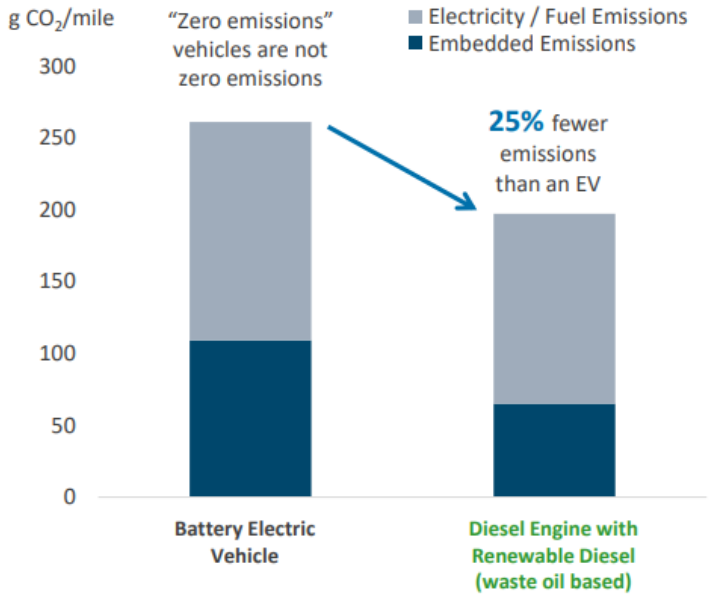
a. Transportation sector decarbonization should embrace all technologies fit for purpose.

Valero recognizes DEP's desire to expediently lower GHG emissions from the transportation sector. As a proud producer of the low-carbon liquid fuels that have been and will continue to be essential to the decarbonization of the transportation sector, Valero encourages DEP to not limit its transportation sector planning to zero-emission vehicle ("ZEV") technologies.

An exclusive reliance on those technologies ignores both the full lifecycle GHG emissions of ZEVs and the benefits of low-carbon liquid fuels and other emerging technologies. DEP 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."[1] In fact, the Hummer EV using U.S. average grid electricity is reported as generating higher carbon dioxide emissions per mile than many smaller, more efficient gasoline-powered cars.[2]

A lifecycle analyses conducted by Southwest Research Institute finds that a light-duty internal combustion engine vehicle ("ICEV") that runs on renewable diesel with a carbon intensity of 25 g/MJ results in 25% fewer lifecycle GHG emissions when compared to a comparable battery electric vehicle ("BEV") using U.S. average grid electricity, as shown in Figure 1.

Figure 1: U.S. Light-Duty Vehicle Lifecycle Emissions
(Sept. 2022 Valero Investor Relations Presentation)



[1] *See* http://www.nber.org/papers/w21291.
[2] *See* https://qz.com/2154558/big-electric-trucks-and-suvs-are-the-new-gas-guzzlers.

DEP should remain open to emerging innovative approaches and new technologies for reducing GHG emissions from ICE vehicles, such as on-board carbon dioxide capture and subsequent sequestration.

There are other complexities associated with a singular transition to ZEVs that DEP should also consider, including:

- Significant environmental impacts arise from other aspects of the ZEV lifecycle, including raw material acquisition and processing, and battery production, transport, disposal, and recycling.[3]

- ZEVs are more expensive on average than their ICE vehicle counterparts and unaffordable for many households. According to Consumer Reports, "[m]ost new EVs are luxury models with an average sale price of over $61,000—about $12,000 more than the industry average."[4] By contrast, the median per capita and household incomes in Maine are approximately $36,171 and $63,182, respectively.[5]

- A transition to ZEVs would expose Maine residents to supply chain vulnerabilities largely beyond the control of regulators. For instance, by 2030, Wells Fargo projects a risk of shortages across all of the key components of EV batteries, except manganese,[6] which is underscored by long lead times for the EV battery supply chains,[7] and a reliance on geopolitical rivals who control those supply chains.[8]

- Cold climate conditions like those experienced in Maine have been shown to significantly reduce the battery range and efficiency of BEVs.[9]

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[3] *See* Perry Gottesfeld, *Electric cars have a dirty little recycling problem–batteries*, CANADA'S NATIONAL OBSERVER, Jan. 22, 2021, https://www.nationalobserver.com/2021/01/21/opinion/electric-cars-have-dirty-little-recycling-problem-their-batteries.

[4] Keith Marry, Anita Lam, *Will an Electric Car Save you Money?*, Consumer Reports (February 16, 2023) https://www.consumerreports.org/cars/hybrids-evs/will-an-electric-car-save-you-money-a9436870083/. *See also* Shivansh Tiwary and Paul Lienert, Ford CEO says EV cost parity may not come until after 2030, Reuters (May 31, 2023) https://www.reuters.com/business/autos-transportation/ford-ceo-says-ev-cost-parity-may-not-come-until-after-2030-2023-05-31/.

[5] Estimates as of July 1, 2021, representing the income over the past 12 months, in 2021 dollars. U.S. Census Bureau, *Quick Facts – Maine*, https://www.census.gov/quickfacts/fact/table/ME/INC910221#INC910221.

[6] Colin M. Langan, et al., *BEV Teardown Series: The Untold Electric Vehicle Crisis, Part 1: Tesla Model Y–The Pace Car*, WELLS FARGO, May 11, 2022.

[7] IEA 2022 Global EV Outlook.

[8] *Id.*

[9] *See* Jon Witt, *Winter & Cold Weather EV Range Loss in 7,000 Cars*; RECURRENT, Dec. 12, 2022, https://www.recurrentauto.com/research/winter-ev-range-loss; *see also 20 popular EVs tested in Norwegian winter conditions*, NORWEGIAN AUTOMOBILE FEDERATION, Mar. 12, 2020, https://www.naf.no/elbil/aktuelt/elbiltest/ev-winter-range-test-2020/.

b. DEP must consider the availability of charging infrastructure and grid reliability impacts.

As part of its evaluation of potential economic impacts to the welfare of Maine residents, DEP must assess grid reliability impacts stemming from ACC II's forced electrification of its transportation sector. Reliance on BEVs for transport may have unintended, negative consequences, especially in relation to the electricity generating sector. In addition, DEP needs to accurately predict the number of additional chargers that will be needed to support Maine's anticipated BEV population. ZEV mandates like ACC II also present significant risks to grid reliability and the stability of the transportation sector. Maine already has weather-related grid reliability challenges. The U.S. Energy Information Administration ("EIA") tracks a set of three reliability metrics for the U.S. electric grid, as shown in Table 1.[10]

Table 1: Maine Electrical Power Reliability Metrics

Metric	Description	3-year Average (2019-2021)
System Average Interruption Duration Index (SAIDI)	Describes the duration of the average customer interruption	986 minutes
System Average Interruption Frequency Index (SAIFI)	Describes how often the average customer experiences an interruption	3.0 interruptions per year
Customer Average Interruption Duration Index (CAIDI)	Describes the average time required to restore service	312 minutes

Averaged over 2019-2021, Maine was one of five U.S. states that was in the fourth quartile for all three-reliability metrics (the others being Alabama, Louisiana, Mississippi, and North Carolina),[11] with the leading cause of electric outages attributed to "Weather or Falling Trees."[12] According to the EIA, "Maine, historically a state with long electricity interruptions during the winter, is a heavily forested state where power interruptions resulting from falling tree branches are common. In 2020, Maine saw the highest average number of power interruptions" amongst the fifty states.[13]

A reliance on BEVs for the replacement of damaged electrical poles, emergency assistance, storm recovery and personal mobility for necessities like food and medicine would have exponentially increased the magnitude of the disaster and the hardship to the local community.

[10] *See* https://www.eia.gov/electricity/state/maine/state_tables.php.
[11] EIA State Electricity Profiles for 2021, *see https://www.eia.gov/electricity/state/. See also* https://www.eia.gov/todayinenergy/detail.php?id=50316.
[12] U.S. Department of Energy "State of Maine Energy Sector Risk Profile," March 2021, *see* https://www.energy.gov/sites/default/files/2021-09/Maine%20Energy%20Sector%20Risk%20Profile.pdf.
[13] *See* https://www.eia.gov/todayinenergy/detail.php?id=50316.

c. DEP lacks the legal and legislative authority to adopt a transportation electrification mandate like California's ACC II standards.

It is crucial that the policy guiding DEP's rulemaking actions be supported by law in order to avoid inefficient expenditures of time and resources, or worse, misleading the public by setting expectations regarding outcomes that are not within DEP's authority to mandate. Section 177 of the Clean Air Act ("CAA") provides that a state may only adopt "such standards [that] are identical to the California standards for which a waiver has been granted for such model year".[14] As of the date of this letter the U.S. Environmental Protection Agency ("EPA") has not granted a preemption waiver under the CAA for California's ACC II rules. Unless and until EPA grants such a preemption waiver, any state's adoption of these rules is premature and inconsistent with the express terms of § 177.[15]

The measures contemplated by California's ACC II are extraordinary. In considering their adoption in Maine, there is little to no legal analysis to confirm that the novel approaches and requirements mandated under the regulations are within the authority of DEP and do not offend principles of state or federal law. DEP should consider whether the measures called for in the California ACC II rule conflict with or are otherwise preempted by the statutory mandates of federal legislation such as the Energy Policy and Conservation Act ("EPCA"); the federal CAA; the Energy Independence and Security Act ("EISA"), including the Renewable Fuel Standard ("RFS").

ACC II will have vast nationwide political and economic significance. Requirements that mandate a shift from ICEV to ZEV sales will significantly impact supply chains, consumer costs, electric power infrastructure, domestic energy security, and interstate commerce.

Additionally, ACC II includes measures that may violate other constitutional provisions and principles. These include, but likely are not limited to, the Dormant Commerce Clause, which prohibits state regulations that improperly discriminate against out-of-state commercial interests or that unduly burden interstate commerce; the dormant foreign affairs preemption doctrine under the Supremacy Clause, which preempts state laws that intrude on the exclusive federal power to conduct foreign affairs; the Takings Clause of the Fifth Amendment, which precludes the taking of private property (or the elimination of entire industries) for public use without just compensation; and the equal sovereignty doctrine, which constrains the federal government from treating states disparately.

Because the measures called for under ACC II are unprecedented in their scope and reach, Maine should conduct sufficient legal review to confirm that the recommended actions are authorized under applicable law and that they are not preempted or precluded as a matter of law before establishing a recommendation for rulemaking.

[14] 42 U.S.C. § 7507(2).
[15] 42 U.S.C. § 7507.

d. Limitations of CAA § 177.

The early stages of California's ZEV program were mired by low consumer acceptance, slow technological advancement, missed goals, and backtracking. While California's goals remained aspirational, it always maintained (and several times applied) the ability to re-write the rules when the program proved infeasible for automakers.[16, 17, 18] The limitations in § 177 of the CAA do not provide states (other than California) with the flexibilities to adjust ambitious targets to accommodate the realities of record inflation, extraordinary supply chain disruptions, global uncertainty due to the war in Ukraine, and critical concerns about the availability, cost and foreign dependence of minerals needed for ZEV batteries. Rather, states may adopt and enforce standards to control emissions from new motor vehicles only if "such standards are identical to the California standards".[19]

Maine must carefully consider what the implications will be if reality cannot keep pace with its ambitions – e.g., if automakers cannot supply ZEVs in the numbers needed to meet the DEP's proposed ZEV sales mandates, if consumers choose not to or cannot afford to purchase the ZEVs, and if the electrical grid and ZEV charging infrastructure cannot keep pace with the growth in the ZEV fleet. Without the option of modifying the rules to accommodate ZEV realities, states adopting California's standards via § 177 risk creating for themselves a quagmire in which automakers are unable to sell and consumers unable to purchase the new vehicles.

e. California's struggles present a cautionary tale for Maine.

DEP should consider the implications that a strategy focused on a singular technology may have on community decision-making, consumer choice, and the unintended consequences that reliance on electrification may present, including foreign supply chain disruptions and forced labor in the production of the raw materials needed to manufacture batteries.[20] If environmental justice is truly a commitment for Maine, it should carefully consider the criticisms of California's climate approach, such as those leveled by The Two Hundred, which point out the disproportionate

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[16] California Air Resources Board ("CARB" or "ARB"), *ARB Modified Zero-Emission Vehicle (ZEV) Regulation* (April 24, 2003) https://ww2.arb.ca.gov/news/arb-modifies-zero-emission-vehicle-zev-regulation (providing that ARB voted to modify California's ZEV rule in order to allow automakers to meet part of their ZEV requirement).
[17] CARB, *Notice of Public Hearing to Consider Proposed Amendments to the California Zero-Emission Vehicle Regulations Regarding Treatment of Majority Owned Small or Intermediate Volume Manufacturers and Infrastructure Standardization* (May 1, 2001) https://ww3.arb.ca.gov/regact/charger/notice.htm (stating that "[a]t a January 25, 2001, hearing, the Board approved major changes to the ZEV regulations that will significantly reduce the number of ZEVs required during the near term").
[18] CARB, *Proposed 2014 Amendments to the Zero Emission Vehicle Regulation* (September 2, 2014) https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2014/zev2014/zev14isor.pdf?viewType=Print&viewClass=Print (stating that "California could see about 26,000 fewer ZEVs and TZEVs delivered in the 2018 through 2025 model years than would be delivered under the existing regulation").
[19] *See* 42 U.S.C § 7507.
[20] *See* U.S. Department of Energy, *2022 List of Goods Produced By Child Labor or Forced Labor*, at 50-51, https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2021/2022-TVPRA-List-of-Goods-v3.pdf.

impacts to working and minority communities.[21] As California has faced rolling blackouts and historic energy prices, Governor Newsom in his May 2022 state budget proposal has pivoted to the use of traditional fuel infrastructure to ensure system reliability to protect against outages.[22] Moreover, unworkable ZEV sales mandates put Maine at risk of missing out on real carbon reductions available through incentivizing low-carbon liquid fuels and by encouraging the development of emerging carbon removal technologies.

f. DEP must provide for a transparent and reasoned economic analysis.

DEP has failed to prepare a comprehensive costs model with respect to the proposed ACC II adoption. Without doing so, DEP could not and cannot adequately consider alternatives that emphasize affordability alongside emissions reductions. DEP has also failed to convey the consequences and difficulties associated with the major technology transformation required under the rulemaking. For example, DEP neglects both defined and less defined risks as well as potential impacts to Maine stakeholders. DEP has not estimated what Maine's total costs of compliance would be under ACC II. Neither has DEP provided any discussion quantifying impacts to Maine's job market. Accordingly, Maine's analysis in support of ACC II is absent and inadequate.

Moreover, DEP cannot merely rely on and extrapolate from CARB's data and analysis without adequately considering differences in scale, climate, population density, and state economies that will have profound impacts on Maine's experience implementing ACC II. State specific and regional factors are material and must be considered. In sum, DEP has rushed its consideration of ACC II without performing an independent analysis to ensure the regulations are properly and thoroughly vetted for application in Maine.

As discussed above, as California has felt the real-world implications of its climate policy with rolling blackouts and sky-high energy prices, it is now implementing a broader approach to GHG reductions that includes investment in carbon capture and fossil fuel infrastructure to ensure future system reliability. DEP need not focus on an inexplicable fear of prolonged reliance on liquid fuels infrastructure; rather, it can and should present a transparent, technology-neutral approach that allows for innovation that would better serve Maine's most vulnerable communities. For example, MaineDOT highlighted known risks and challenges inherent to EV adoption in its "Maine Plan for Electric Vehicle Infrastructure Deployment (Maine PEVID)" dated July 2022:[23]

- "Maine also faces significant challenges with its large area, small population, and below-national-average per capita income. While Maine's climate is warming, its extreme low temperatures present additional challenges for EVs, in terms of both shortened range and longer charging times."[24]

[21] *See* Plaintiffs' Complaint, *The Two Hundred for Homeownership, et al. v. California Air Resources Board, et al.*, No. 1:22-CV-01474.
[22] *See* https://www.ebudget.ca.gov/2022-23/pdf/Revised/BudgetSummary/ClimateChange.pdf.
[23] Maine Department of Transportation (MaineDOT), *Maine Plan for Electric Vehicle Infrastructure Deployment (Maine PEVID)* (July 2022) https://www.fhwa.dot.gov/environment/nevi/ev_deployment_plans/me_nevi_plan.pdf.
[24] *Maine PEVID* at 11.

- "For the five-year period of NEVI Formula funding, and the coming few decades, however, cold temperatures will remain a top challenge in relation to EV adoption and successful operation of EVSE."[25]

- "In the near term, there is a significant risk that DC fast charging will not be economically viable, particularly in rural areas that currently represent the largest gaps in Maine's EV charging network. Initial analysis suggests that some rural stations may not be profitable within ten years, due to a lack of EV usage at these rural sites."[26]

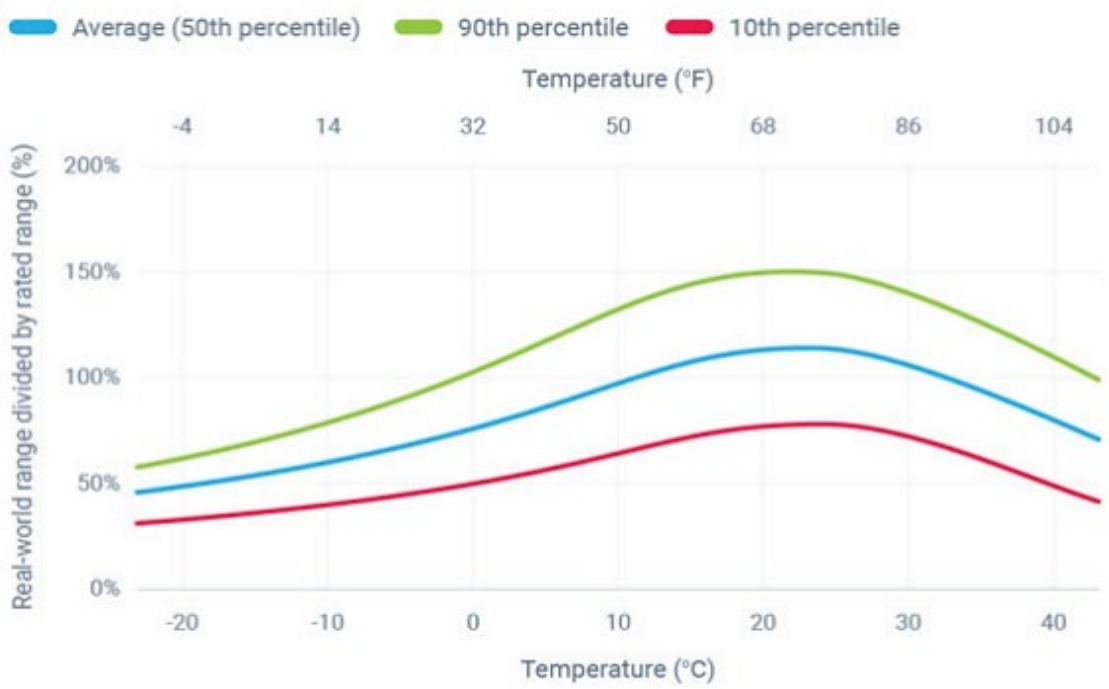
- "Longer-term, if EV adoption rates take off as projected, there will be a need for new grid capacity. This need will hit at different times in different locations because each part of the electrical grid has unique capacity constraints."[27]

- "Cold weather reduces EV range and increases charging times (for both DCFC and L2). Maine's cold climate and low, widely dispersed population present significant challenges to EV adoption and to the sustainable operation of EV charging equipment. These challenges will be acute in northern and far-inland (esp. mountainous) parts of the state; these areas tend to be rural, with lower-than-average income, as well as low [Annual Average Daily Traffic] AADT."[28]

- "The following figure shows the impacts of temperature on EV range for 4,200 real-world EVs measured by GEOTAB":[29]

[25] *Maine PEVID* at 13.
[26] *Maine PEVID* at 21.
[27] *Maine PEVID* at 21.
[28] *Maine PEVID* at 21.
[29] *Maine PEVID* at 21.

Graphic 13: *Impacts of Temperature on EV range for 4,200 real-world Evs Merasured by GEOTAB*



- "While cold weather presents significant challenges, financial viability (in rural parts of the state) remains the biggest risk. In remote locations, there is the risk that if DCFC facilities are oversized for the market demand, then operating revenue will not be able to cover costs. This could result in private vendors and/or property owners becoming disillusioned with the economic burden of owning/hosting this critical infrastructure. Facilities may fall into disrepair or be removed entirely, creating a negative case study on the transition to EVs."[30]

- "Maine faces significant challenges; these include low population density, remote stretches of important roads where limited or no electric service currently is available, a high percentage of state road mileage, and below-national-average per capita income."[31]

- "Analysis shows that expected NEVI formula funding simply is not enough to fully build out Maine's current and nominated AFCs within the NEVI funding period."[32]

[30] *Maine PEVID* at 22.
[31] *Maine PEVID* at 24.
[32] *Maine PEVID* at 24.

- "Most of the existing DCFC stations on AFCs do not meet the NEVI requirements for being fully built out. Based on studying the costs that would be incurred to bring the existing DCFC stations on current AFCs up to the NEVI standard, Maine has concluded that doing so would spend virtually all the charging infrastructure funding that can reliably be expected and would not lead to acceptable results. It would mean not completing the northern interstate (with its connection to New Brunswick, Canada) and not completing two remote AFC corridors that connect with the province of Québec and are important for wood products and tourism."[33]

- "Through [its] equity discussions Maine has identified both concerns and opportunities related to electrification:
    - The initial cost of electric vehicles is high.
    - Other factors that facilitate buying an EV, such as ability to charge at home (an estimated 80% of charging occurs at home) and owning two or more vehicles, also are strongly associated with higher income families."[34]

DEP falls short in communicating such challenges and representing the concerns of stakeholders associated with singular reliance on electrified transport in its assessment of ACC II.

Maine stakeholders should be afforded an opportunity to evaluate the data, costs, and underlying assumptions before DEP proceeds with the adoption of ACC II.

Conclusion

Maine should support and foster technological innovations in the transportation sector by embracing technology-neutral approaches to decarbonization. Decarbonizing the transportation sector will require multiple technologies competing in an open market that rewards technologies based on emissions reductions and costs. Valero is prepared to work with DEP to help ensure its GHG reduction goals are achieved.

[33] *Maine PEVID* at 24.
[34] *Maine PEVID* at 36.

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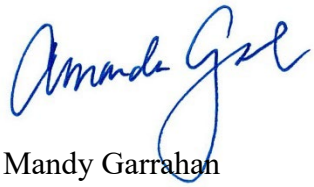
Valero appreciates the opportunity to comment and would welcome the opportunity to have additional discussions on these issues. Please do not hesitate to contact me with any questions or if Valero or I can otherwise be of assistance.

Sincerely,



Mandy Garrahan
Executive Director Strategic Planning & Public Policy