

August 25, 2023

Submitted electronically at: rulecomments.dep@maine.gov
CC: Lynne.A.Cayting@maine.gov

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

Re: Comments on the Proposed Advanced Clean Cars II (ACCII) and Advanced Clean Truck (ACT) Regulations

Dear Ms. Cayting,

Pursuant to the State of Maine Department of Environmental Protection (DEP) proposed amendments to air pollution control regulations, **Tesla respectfully submits the following comments in support of adopting Advanced Clean Cars II (ACCII) and Advanced Clean Truck (ACT) Regulations.**

As an active participant in the California Air Resources Board (CARB) ACT and ACCII rulemakings, Tesla supports the adoption of the regulations by the state of Maine.¹ Tesla believes the pace of electric vehicle innovation, cost-reduction, and deployment coupled with the public health and welfare imperatives to address criteria air pollution and accelerating impacts of climate change support adoption of each of the proposed regulations.

Tesla's Approach to Emissions Mitigation

Tesla's mission is to accelerate the world's transition to sustainable energy. Moreover, Tesla believes the world will not be able to solve the climate change crisis without directly reducing air pollutant emissions—including carbon dioxide (CO₂) and other greenhouse gases (GHGs)—from the transportation and power sectors.

To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance fully electric vehicles and energy generation and storage systems, installs, and maintains such systems, and sells solar electricity. Tesla currently produces and sells four fully electric, zero emissions light duty vehicles (ZEVs): The Model S sedan, the Model X sport utility vehicle (SUV), the Model 3 sedan, and the Model Y mid-sized SUV. In addition, Tesla has announced plans to begin production of the Cybertruck (pickup truck) this year and delivered the first Semis (Class 8 truck) to customers in December. As an EV-only manufacturer, EPA recognized in its *2021 Automotive Trends Report* that Tesla had by far the lowest carbon dioxide emissions (0 g/mi) and highest fuel economy (119 miles per gallon equivalent) of all large vehicle manufacturers in MY 2020.²

¹ See e.g., Tesla Comments on the HDO regulation (Aug. 25, 2020) available at <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=hdomnibus2020>; Tesla Comments on the ACT regulation (Dec. 9, 2019) available at <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=act2019>; Tesla Comments on ZEP Certification regulations (Feb. 15, 2019) available at: <https://ww2.arb.ca.gov/applications/public-comments?p=comm&s=bccommlog&l=zepcert2019>

² EPA, [The 2021 EPA Automotive Trends Report, Greenhouse Gas Emissions, Fuel Economy, and Technology Since 1975](#) at 13 (Nov. 2021) (preliminary MY 2021 at 125.7 miles per gallon).

Tesla is also deeply committed to ensuring the U.S. remains a leader in advanced manufacturing.³ In 2023, the Tesla Model Y ranked as the most American-made car, based on overall contributions to the U.S. economy, the Model 3 ranked just below as the second, the Model X ranked 3rd and Model S 4th as the most American made cars on the market.⁴ NHTSA similarly confirms that 100% of the vehicle, engine, and transmission assembly in each Tesla vehicle sold in the U.S. occurs in the U.S.⁵ In addition, Tesla's U.S. supply chain continues to expand and spans across more than 40 states, including Alabama, Georgia, Ohio, Indiana, and Michigan.⁶

Tesla has continued a remarkable period of growth and scale based on its advanced technology vehicle product offerings. In the U.S., Tesla conducts vehicle manufacturing and assembly operations at its factory in Fremont, CA, and produces electric drive trains and manufactures advanced battery packs, as well as Tesla's energy storage products, at its Gigafactory Nevada in Sparks, NV. Tesla also builds and services highly automated, high-volume manufacturing machinery at its facility in Brooklyn Park, MN, and operates a tool and die facility in Grand Rapids, MI.⁷ Tesla produces solar energy and vehicle charging products, including manufacturing of its DC-fast charging equipment for heavy duty vehicles, at its Gigafactory New York in Buffalo, NY.

In the spring of 2022, Tesla began production of Model Y vehicles at its newest vehicle and advanced battery manufacturing facility in Austin, TX. The project will invest over \$10B in factory development and create 20,000 new jobs.⁸ Upon full completion, the Gigafactory Texas will produce Tesla's new Cybertruck and Model Y crossover, and manufacture Tesla's new, advanced 4680 lithium-ion battery cell and battery packs.⁹ Globally, by 2030, Tesla aims to sell 20 million electric vehicles per year.¹⁰

Heavy Duty Trucking: Tesla's Full Electric Class 8 Truck – the Tesla Semi¹¹

In 2017, Tesla introduced the Tesla Semi to the world, a Class 8 truck designed from the ground up to be the most efficient and safest truck on the market. The Tesla Semi represents an opportunity to have an outsized impact on reducing NOx and GHG emissions from goods movement and transportation. The Semi comes in two models, with ranges of 300 and 500 miles respectively, and demonstrates that an all-electric truck can meet virtually any duty cycle when paired with the Semi Charging system that Tesla is developing. In 2022, Tesla began deliveries of the long-range Semi.¹²

³ See generally, Tesla, [Impact Report 2022](#) (May 6, 2022).

⁴ Cars.com, 2023 Cars.com American-Made Index: Which Cars Are the Most American? (June 21, 2023) *available at* <https://www.cars.com/articles/2023-cars-com-american-made-index-which-cars-are-the-most-american-467465/>; See also, Cars.com, Cars.com's American-Made Index Adds Tesla to Exclusive List of Multiyear Chart-Toppers, Model Y Nabs No. 1 (June 21, 2022) *available at* <https://www.cars.com/articles/cars-coms-american-made-index-adds-tesla-to-exclusive-list-of-multiyear-chart-toppers-model-y-nabs-no-1-451081/>; Cars.com, Tesla Model 3 Snags No. 1 Spot on Cars.com's 2021 American-Made Index[®]; First All-Electric Vehicle to Top the List in Its 16-Year History (June 23, 2021) *available at* <https://www.multivu.com/players/English/8915151-cars-com-tesla-model-3-2021-american-made-index/>; American University, Kogod School of Business, 2021 Made in America Index (Oct. 15, 2021) (Finding in 2021, each of Tesla's vehicles - the Model S, 3, X and Y - ranked in the top 10 and Tesla was the only manufacturers to have representation from its entire portfolio in the top 10.) *available at* <https://kogod.american.edu/autoindex/2021>

⁵ NHTSA, [Technical Support Document: Proposed Rulemaking for Model Years 2024-2026 Light Duty Vehicle Corporate Average Fuel Economy Standards](#) (Aug. 2021) at 96, Table 2-6.

⁶ See e.g., AutoNews, [Suppliers Starting to Set Stage for Tesla in Texas](#) (Sept. 5, 2021).

⁷ See Tesla, [Manufacturing: Build a Sustainable Future](#).

⁸ See, e.g., KXAN/Austin Business Journal, [Musk teases huge job number at Austin-area Tesla factory](#) (Dec. 20, 2021); Reuters, [Musk says Tesla's Texas factory is \\$10 bln investment over time](#) (Dec. 15, 2021).

⁹ See Tesla, [Tesla Battery Day Presentation](#) (Sept. 22, 2020).

¹⁰ Tesla, [Impact Report 2020](#) (Aug. 10, 2021) at 2.

¹¹ See Tesla, [Semi](#).

¹² See, Seeking Alpha, [Elon Musk tweets Tesla Semi 500-range variant starts shipping this year](#), (Aug. 10, 2022). *See also*, NACFE Run on Less PepsiCo Sacramento Profile, *available at* <https://runonless.com/roled-profiles/pepsico/>

Combination trucks –of which the vast majority are semi-trucks –in the U.S. account for just 1.1% of the total fleet of vehicles on the road. That said, because combination trucks have high fuel consumption due to their weight and heavy utilization, they account for approximately 18% of all U.S. vehicle emissions. Electrifying the heavy-duty truck segment is an essential part of transitioning the world to sustainable energy.

With both the U.S. and E.U. having approved higher weight allowances for electric heavy-duty trucks, Tesla expects the payload to be at least as high as it would be for a diesel truck. In the E.U., electric semi-trucks are permitted to be 2 tons (~4,400 pounds) heavier than diesel equivalents, and in the U.S. the allowance is 0.9 tons (2,000 pounds). When fully loaded, the Tesla Semi should have over 500 miles of range, achieved through aerodynamics and highly efficient motors, and be able to reach an efficiency of less than 2 kWh/mile.¹³

Since unveiling the Semi, a significant number of fleets with substantial freight needs have placed reservations for the truck, indicating broad industry demand for heavy-duty electric vehicles.¹⁴ These fleets will be deploying the Semi in a wide range of applications, including but not limited to, manufacturing, retail, grocery and food distribution, package delivery, dedicated trucking, rental services, intermodal, drayage, and other applications. Companies with operations throughout North America representing every major trucking sector and category of the economy have reserved the Tesla Semi, ranging from food service to logistics to retail.

The reason for this strong interest is clear – the economics of electrified heavy-duty vehicles are incredibly compelling for end-users, particularly sophisticated and economically rational operators. Tesla estimates that the time to recoup the investment in a Tesla Semi, given the operational savings it provides customers, will be faster compared to a conventional diesel truck. With the per mile operational costs being so much cheaper than diesel trucks, economic minded operators will maximize the use of their electric trucks and quickly expand the number of electric trucks in their fleets.

Furthermore, by removing diesel from the heavy-duty equation altogether, battery electric trucks like the Semi represent a superior solution relative to other approaches that seek to reduce NOx emissions by increasing the efficiency of diesel trucks or via post-combustion treatment. As one recent analysis recognized, fully addressing harmful air pollution from trucks used in urban and community areas by 2035 and eliminating pollution from all new trucks and buses by 2040, can provide tremendous public health and welfare benefits, including preventing 57,000 premature deaths by 2050, reducing NOx emission by more than 10M tons, eliminating almost 200,000 tons of PM by 2050, and avoiding 4.7B tons of GHG emissions.¹⁵

Tesla supports Maine’s proposed ACT and ACCII regulations and encourages DEP to adopt ACCII through 2035 to reach its goals and amend ACT regulations according to CARB’s intended rule

Tesla supports the development and adoption of strong state vehicle NOx, GHG emissions performance standards and LEV/ZEV standards for light to heavy duty vehicles. For many years, these standards have helped drive investment in electric vehicle manufacturing and technology because those performance standards incentivize the manufacturing of vehicles with zero tailpipe emissions and provide a mechanism by which vehicle manufacturers that deploy innovative technologies and out-perform the emissions standards and thus are direct

¹³ Id.

¹⁴ See e.g., Yahoo Finance, [Tesla Gets Order For 150 Semi Trucks from Canadian Company As It Prepares For 'Volume Production'](#) (Nov. 5, 2020); The Street, [Walmart Triples-Down on Tesla Semi Reservations](#) (Sept. 29, 2020); Business Insider, [Tesla has a new customer for its electric Semi — here are all the companies that have ordered the big rig](#) (Apr. 25, 2018).

¹⁵ Environmental Defense Fund, [Clean Trucks, Clean Air, American Jobs](#) (Mar. 4, 2021) at 1.

participants in reducing emissions from the transportation sector, are awarded through tradeable compliance credits.¹⁶

Additionally, Tesla believes Section 3(E) of the ACT regulatory order should be amended. As written, §3(E) replaces “2021” with “2027” in “all provisions” of CCR Title 13 as incorporated by reference into Maine code. As adopted by California, however, 13 CCR 1963.2 applies “beginning with the 2021 model year”. Under Maine’s proposed regulation, that would now be 2027. The proposed rule conflicts with the intent of CARB’s ACT rule to provide for early credit generation and banking in Maine beginning in model year 2024.

In 2019, Maine set an executive target to achieve net zero GHG emissions by 2050 and enacted statutory targets to reduce GHG emissions 45% below 1990 levels by 2030 and 80% below 1990 levels by 2050.¹⁷ By adopting ACC II through 2035, Maine can reduce CO2 emissions from 10.10 to 9.29 million metric tons annually.¹⁸ Importantly, ACCII, while attempting to move to 100% ZEV targets by 2035, there are several compliance flexibilities that will effectively reduce the target. The compliance flexibilities, including the transition use and allowable use of historic credit banks to meet compliance through 2030, plug-in hybrid (PHEV) allowance through 2035 and beyond, and use of early compliance credits through 2028, and will reduce the overall stringency of the program. At minimum, these flexibilities will likely reduce the stringency of the program to 66% in Model Year (MY) 2032, in MY 2032 due to PHEV flexibilities which in real-world demonstration, are driven significantly more miles on gasoline than on electricity. The International Council on Clean Transportation reports in a 2022 study, “Real-world electric drive share may be 26%–56% lower and real-world fuel consumption may be 42%–67% higher than assumed within EPA’s labeling program for light duty vehicles.”¹⁹

To that end, the ACT and ACCII rules provide new additions to Maine’s comprehensive air pollution mitigation strategy that ensure pollution reduction, increased deployment of emission reduction technology, and facilitation of increased investment for the portion of the motor vehicle sector that needs it most, by fostering technological innovation in ZEV manufacturing.

Indeed, the public health, climate, and economic benefits from reducing heavy-duty NOx and GHG emissions cannot be overstated. Air pollution is estimated to cause over 200,000 premature deaths in the U.S. each year; with more than half caused by transportation emissions.²⁰ Recent findings indicate that the U.S. health care costs from air pollution and climate change exceed \$800 billion per year.²¹ Air pollution impacts from pollutants like PM2.5 that are associated with the medium- and heavy-duty sector not only cause premature mortality, cardiovascular disease and respiratory disease but also can affect neurological disorders.²² Other studies suggest

¹⁶ See, e.g., Virginia McConnell, Benjamin Leard & Fred Kardos, Resources for the Future, [California’s Evolving Zero Emission Vehicle Program: Pulling New Technology into the Market](#) at 22-31 (Nov. 2019). (California state Zero Emissions Vehicle credit banking and trading).

¹⁷ https://www.maine.gov/future/sites/maine.gov/governor.mills/files/inline-files/Executive%20Order%209-23-2019_0.pdf

¹⁸ <https://rmi.org/energy-policy-simulator/>

¹⁹ ICCT, Real World Usage of Plug-In Hybrid Vehicles in the United States, Executive Summary, Page i.

<https://theicct.org/wp-content/uploads/2022/12/real-world-phev-us-dec22.pdf>

²⁰ Atmospheric Environment, [Air pollution and early deaths in the United States. Part I: Quantifying the impact of major sectors in 2005](#) (Nov. 2013); See also, PNAS, [Fine-scale damage estimates of particulate matter air pollution reveal opportunities for location-specific mitigation of emissions](#) (April 8, 2019) (Over 100,000 premature death just from PM 2.5).

²¹ Medical Society Consortium, [The Costs of Inaction: The Economic Burden of Fossil Fuels and Climate Change on Health in the United States](#) (May 20, 2021).

²² The Lancet, [Long-term effects of PM_{2.5} on neurological disorders in the American Medicare population: a longitudinal cohort study](#) (Oct. 19, 2020).

that exacerbation of air pollution and heat exposure related to climate change may be significantly associated with risk to pregnancy outcomes in the U.S.²³

These negative effects of air pollution disproportionately harm the most vulnerable populations, including children, the elderly, and residents in low-income and disadvantaged communities.²⁴ Indeed, two-thirds of Americans who live near high-volume roads are people of color and the median household income in these communities is roughly 20% below the national average.²⁵ Emissions from heavy-duty diesel trucks are roughly the equivalent to those of 20 to 55 light-duty vehicles on the road. Repeatedly, peer reviewed, government and inter-governmental studies point toward electrification as key to addressing criteria air pollutants, improving air quality, and lowering the risk of respiratory illness.²⁶

The American Lung Association (ALA) recently estimated that wide-spread transportation electrification across the United States translates into \$72 billion in avoided adverse health effects. Electrification would save approximately 6,300 lives per year and avoid more than 93,000 asthma attacks, and 416,000 lost workdays annually due to significant reductions in transportation-related pollution.²⁷ Other studies have found dramatic localized air quality and public health benefits will result for electrifying the heavy-duty fleet.²⁸

Adoption of ACCII and ACT will assist Maine in maintaining compliance with U.S. EPA requirements

Adoption of ACCII and ACT will assist Maine in maintaining compliance with U.S. EPA requirements of Sections 110 (a) (1) and (2) of the Clean Air Act for the 2015 National Ambient Air Quality Standards for ozone. Importantly, the current 2015 NAAQS standard set at .70 ppb was scientifically controversial with public health advocates. As a result, the 2020 decision is under reconsideration by the Biden Administration.²⁹ Just this week, the EPA announced a new review of the Ozone NAAQS to ensure the standards “reflect the most current, relevant science and protect people’s health from these harmful pollutants.”³⁰ Based upon scientific evidence indicating a more stringent standard will provide significant public health and welfare benefits, Maine should anticipate the Ozone NAAQS levels to be lowered. Thus, planning to reduce transportation emissions now is critical to ensure that Maine is on the path to attainment under future, more stringent NAAQS standards.

²³ Bekkar, et al. JAMA Open Network, [Association of Air Pollution and Heat Exposure with Preterm Birth, Low Birth Weight, and Stillbirth in the USA Systematic Review](#) (June 18, 2020).

²⁴ U.N. Environmental Programme, [Young and old, air pollution affects the most vulnerable](#) (Oct. 16, 2018).

²⁵ Union of Concerned Scientists, [Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California](#), (Oct. 11, 2016), at 10.

²⁶ See e.g., International Panel on Climate Change (IPCC), [AR 6 Climate Change 2022: Impacts, Adaptation and Vulnerability](#) (Feb. 28, 2022) at 7-120; USGCRP, [National Climate Assessment 4, Volume II, Chapter 29](#) at Box 29.2 (In transportation, for example, switching away from petroleum to potentially lower GHG fuels, such as electricity and hydrogen, is projected to reduce local air pollution. In California, drastic GHG emissions reductions have been estimated to substantially improve air quality and reduce local particulate matter emissions associated with freight transport that disproportionately impact disadvantaged communities”).

²⁷ American Lung Assoc., [The Road to Clean Air Benefits of a Nationwide Transition to Electric Vehicles](#) (Mar. 31, 2022) at 5-6. See also, ZETA, [Medium- and Heavy Duty Electrification: Weighing the Opportunities and Barriers to Zero Emission Fleets](#) (Jan. 26, 2022) at 8-9.

²⁸ See, Texas A&M, [Tailpipe Emission Benefits of Medium- and Heavy-Duty Truck Electrification in Houston, TX](#) (Apr. 14, 2021) (Finding that by electrifying 40% of the predominantly diesel-fueled MHDVs in the eight-county area, Texans could avoid 21 tons per day of NOx — over a quarter of the 80 tons per day emitted by greater Houston’s on-road traffic. This could be achieved by electrifying a little over 60,000 MHDVs, about 1% of all the vehicles in greater Houston. By comparison, it would take 3.8 million light duty vehicles to achieve the same amount of NOx reductions. Electrification of MHDVs is the quickest way to take the biggest bite out of greater Houston’s NOx emissions.)

²⁹ <https://www.epa.gov/ground-level-ozone-pollution/epa-reconsider-previous-administrations-decision-retain-2015-ozone>

³⁰ <https://www.epa.gov/newsreleases/epa-initiates-new-review-ozone-national-ambient-air-quality-standards-reflect-latest-0>

In the new light duty GHG and multi-pollutant standards EPA states, “[w]hile tailpipe emissions controls for criteria pollutants from conventional ICE-based vehicles can have effectiveness values greater than 90 percent under certain circumstances, electrification provides 100 percent effectiveness under all operating and environmental conditions. This is nearly two orders of magnitude more effective than the historical improvements in GHG emission reductions.”³¹ This shows that EVs are the most effective vehicle technology for reducing not only GHG but criteria pollutants that lead to ozone non-attainment.

Federal EV Charging Policies Support ZEV Adoption

Congressionally enacted policies will facilitate greater and rapid deployment of charging infrastructure sufficient to support EV adoption. The Bipartisan Infrastructure Law (IIJA) created the Charging and Fueling Infrastructure Discretionary Grant Program to deploy publicly accessible charging and fueling infrastructure and provides for \$2.5 billion over five years for the program.³² At the end of March 2023, the Federal Highway Administration (FHWA) issued a notice of funding opportunity to solicit applications for grants totaling up to \$700 million to deploy charging and alternative fueling infrastructure projects. Half of the \$700 million is allocated for electric vehicle and other infrastructure located on public roads or in other publicly accessible locations, while the other half is allocated for charging and alternative fueling infrastructure located along designated alternative fuel corridors. Maine has also been allocated \$19.3M through the National Electric Vehicle Infrastructure (NEVI) program.³³ In addition to the federal investments in charging facilitated by the IIJA, the Inflation Reduction Act Section 30C provides significant tax incentives for the deployment of private capital into charging infrastructure for both light and heavy-duty vehicles.³⁴

Additionally, utility investment in charging infrastructure will accrue over the next several years as evidenced by active proceedings in many jurisdictions.³⁵ Investment in charging infrastructure will be further enhanced by state rebates and incentive programs, such as Maine’s three-phase charging initiative and Efficiency Maine’s instant rebate for electric vehicles.³⁶

Furthermore, Tesla published its charging standard and made it available to all other automakers and EV charging service providers in North America. This standard is known as the North America Charging Standard (NACS). To date, Ford, General Motors, Nissan, Volvo, Polestar, Rivian, Mercedes Benz, Honda, and Acura have all committed to adopting NACS. More than a dozen charging companies, including Electrify America, Chargepoint, EVGo, and Flo, have also announced that they will be selling and installing NACS connectors unifying charging standards and creating more access and uniformity across charging providers.

³¹ See page 161, <https://www.epa.gov/system/files/documents/2023-04/lmdv-multi-pollutant-emissions-my-2027-nprm-2023-04.pdf>

³² Infrastructure Investment and Jobs Act, P.L 117-58 (Nov. 15, 2021), Section 11401.

³³ <https://www.energymaine.com/docs/pevid-2022.pdf>

³⁴ Infrastructure Investment and Jobs Act, P.L 117-58 (Nov. 15, 2021), Section 13404.

³⁵ See e.g., New York State Department of Public Service, Proceeding on Motion of the Commission to Address Barriers to Medium- and Heavy-Duty Electric Vehicle Charging Infrastructure, Case No. 23-E-0070 *available at* <https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=69967&MNO=23-E-0070E>

³⁶ <https://www.energymaine.com/electric-vehicle-rebates/>

Conclusion

For the reasons set forth above, Maine should adopt the proposed regulations including the comments herein, reducing criteria and greenhouse gas air pollutants, and protecting the public health and welfare of Maine's residents.

Respectfully submitted,

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Public Policy & Business Development