

Tesla

Tesla respectfully submits the attached comments in support of Washington's effort to reduce transportation emissions.

Thank you for the consideration,
Thad Kurowski

Submitted Electronically

August 9, 2021

Elena Guilfoil
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Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

RE: Chapter 173-423 WAC, Low Emission Vehicles - Tesla Zero Emission Vehicle (ZEV) and
Advanced Clean Truck (ACT) Regulatory Proposal Support Comments

Dear Ms. Guilfoil:

I. Introduction

Tesla's mission is to accelerate the world's transition to sustainable energy. The fully Electric vehicles (EV) we manufacture and sell are much cleaner than comparable internal combustion engine (ICE) cars over their lifetime. As the Union of Concerned Scientists concludes, "the average EV is cleaner than the average new gasoline vehicle everywhere in the US. But if you choose the most efficient EV available, your emissions reductions from switching from gasoline to electricity will be even higher."¹ This is due largely to two factors: EVs do not emit tailpipe emissions, and they are much more efficient in terms of onboard energy usage because an electric motor is much more efficient than a gasoline engine.") According to the Department of Energy, Alternative Fuels Data Center, emissions from EV's (accessed August, 2021 clicking state of WA)² equate to roughly 9% of those of an internal combustion engine (ICE) vehicle, approximately 16% those of the average hybrid vehicle, and 25% of a Plug-in Hybrid (PHEV) due to the abundance of Washington's almost 74% clean electricity resources (Hydro, wind and solar generation combined), Put another way, on a per average vehicle basis,

¹ <https://blog.ucsusa.org/dave-reichmuth/are-electric-vehicles-really-better-for-the-climate-yes-heres-why>

² https://afdc.energy.gov/vehicles/electric_emissions.html

EV's are roughly 4 to over 10 times cleaner than any other average passenger vehicle type. Furthermore, as the electric generating sector in WA reduces emissions further, the emission performance of EVs will only improve while the average internal combustion engine vehicle emissions go unaffected by these improvements.

Conventional ICE vehicles and the process to produce fuels for them emit a variety of harmful pollutants that increase the risk of serious disease and premature death. As the U.S. Department of Energy states "Direct emissions are emitted through the tailpipe, through evaporation from the fuel system, and during the fueling process. Direct emissions include smog-forming pollutants (such as nitrogen oxides), other pollutants harmful to human health and greenhouse gases (GHG's), primarily carbon dioxide. All-electric vehicles produce zero direct emissions, which specifically helps improve air quality in urban areas."³

According to the World Health Organization, small particulate matter particles can penetrate and lodge deep inside the lungs or enter the blood system. Ozone, another by-product of vehicle tailpipes, is a major factor in causing and exacerbating asthma.⁴ According to a 2016 World Bank report, 5.5 million premature deaths worldwide (1 in every 10 deaths were attributable to air pollution and cost the global economy more than \$5 trillion in 2016).⁵ Furthermore, the negative effects of air pollution disproportionately harm the most vulnerable populations, including children, the elderly, and residents in low-income and disadvantaged communities.⁶

³ <https://www.energy.gov/eere/electricvehicles/reducing-pollution-electric-vehicles#:~:text=Direct%20emissions%20are%20emitted%20through,GHG%20primarily%20carbon%20dioxide.>

⁴ <https://www.who.int/air-pollution/news-and-events/how-air-pollution-is-destroying-our-health>

⁵ World Bank report entitled "The Cost of Air Pollution: strengthening the economic case for action"

⁶ <https://www.unenvironment.org/news-and-stories/blogpost/young-and-old-air-pollution-affects-most-vulnerable>

Similarly, the increased effects of climate change are exacerbating the impacts of criteria air pollution.⁷ Adopting the ZEV and ACTs program will reduce Washington air pollutant emissions that cause climate change. As the U.S. Environmental Protection Agency has recently stated:

“EVs typically result in lower CO2 emissions over their lifetime compared to gasoline vehicles. This is due largely to two factors: EVs do not emit tailpipe emissions, and they are much more efficient in terms of onboard energy usage because an electric motor is much more efficient than a gasoline engine. Thus, even though there are emissions associated with the generation of electricity, the EV overall uses less energy than its gasoline-powered counterpart.”⁸

These emissions reduction benefits have been recognized by numerous other authoritative sources.⁹ As WA consumers increasingly adopt ZEV vehicles of all classes and local utilities continue to decarbonize the electricity generating sector, the state will see growing benefits from emissions reductions while aging ICE vehicles become dirtier over time.

Given the emissions profile of diesel trucks, the ACT will have a dramatic positive impact both on GHG emissions and criteria air pollution. California analyzed the impact of the ACT on emissions in the state and found that it would lead to CO2 emissions reductions of 17.3MMT by 2040 and would reduce NOx emissions by 58,000 tons.¹⁰ The state of Oregon is also in the

⁷ See e.g., [US Global Change Research Program \(USGCRP\), Fourth National Climate Assessment \(Nov. 23, 2018\) at Chapter 13](#) (“Unless offset by additional reductions of ozone precursor emissions, there is high confidence that climate change will increase ozone levels over most of the United States, particularly over already polluted areas thereby worsening the detrimental health and environmental effects due to ozone.”)

⁸ U.S. Environmental Protection Agency, The 2018 EPA Automotive Trends Report (March 2019) at 53.

⁹ See e.g., UNEP, [Emissions Gap Report 2018](#) (November 2018) at 26 (citing EVs as a key tool for meeting reducing carbon emissions); Nature, [Emissions are still rising: ramp up the cuts](#) (Dec. 3, 2018) (citing optimism for reductions in emissions from the increasing wide uptake of electric vehicles); The White House, [United States Mid-Century Strategy for Deep Decarbonization](#) (Nov. 2016) at 55.

¹⁰ <https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/act2019/30dayattc.pdf> at pg. 3.

process of adopting the ACT and in its recent analysis found that the ACT will reduce CO2 emissions between 1.8 MMT and 2.4 MMT by 2040, and lead to a reduction in NOx of 699 metric tons by 2035.¹¹ Similarly, in a recent regulatory filing, New Jersey “estimates the benefits of the ACT rule once implemented in New Jersey will be 4.2 tons per day NOx (1,300 tons per year NOx) in 2040, 0.13 tons per day PM2.5 (40 tons per year PM2.5) in 2040, and 0.44MMT/year CO2e in 2040. In addition, the cumulative total CO2e benefits from 2024 through 2040 for New Jersey are estimated to be 2.6 MMT CO2e.”¹²

ZEV and ACT policies support transportation-related emissions reductions by ensuring automakers deliver a greater diversity and supply of clean vehicles to Washington. Tesla supports Washington State’s Department of Ecology’s (WSDE) and state leadership’s effort to address vehicle emissions through adoption of ZEV and ACT policy towards those ends.

II. Tesla Position Summary

Tesla strongly supports the WSDE’s adoption of Chapter 173-473 inclusive of both the ZEV, ACT and other regulatory updates. These comments focus in on ZEV and ACT proposed regulations and offer the following:

- A. WSDE should consider including the early action ZEV crediting mechanism beginning as soon as Model Year (MY) 2022 as a non-substantive modification, and**
- B. Move ahead adopting ACT regulations without delay.**

¹¹ <https://www.oregon.gov/deg/Regulations/rulemaking/RuleDocuments/ctr2021fisD.pdf> at pg. 5.

¹² <https://www.nj.gov/dep/rules/proposals/20210419a.pdf> at pg. 55.

III. Not all compliance flexibilities are created equal however WSDE should reconsider inclusion of early action crediting.

A. Tesla supports a decision to exclude proportional credit banking

Notably, not all compliance flexibilities are created equal. Proportional credit banking would further incentivize automakers to deliver vehicles into California rather than into Washington. This is because proportional credit generation provides automakers with the ability to double count vehicles delivered in California as if they were delivered into other section 177 states when proportional crediting is adopted in regulations. For legacy automakers, where a vehicle is delivered is a business calculation. With limited production supply, if given the option to deliver vehicles into a single state and count those towards compliance in multiple states, the calculus appears relatively straightforward. Most will deliver to where they receive multiple credits towards regulatory compliance. As Washington is ahead of compliance without a ZEV mandate in place, Tesla agrees with the Department of Ecology's decision to exclude proportional credits in the draft ZEV regulations.

B. Adding an Early Action Credit Flexibility for MY 2023-24 would accelerate ZEV availability

Early action incentivizes actual EV deployment and sales in Washington, thus furthering the state's goal of increasing and accelerating the penetration levels of zero emissions vehicles. Accelerated ZEV penetration has been shown to result in vehicle model delivery prioritization, increased ZEV adoption and long term carbon emission reductions.¹³

¹³ See e.g., Joule, The Underestimated Potential of Battery Electric Vehicles to Reduce Emissions (2019). <https://www.sciencedirect.com/science/article/pii/S2542435119302715>

While Tesla supports moving forward with ZEV adoption without delay, resulting in a MY 2025 initial Washington initial compliance year, Tesla believes that providing automakers with two-to-three years of early action credit banking would result in advancing consumer EV adoption sooner than it would otherwise and provide greater opportunity for industry overcompliance in future years.

Turning to the province of Quebec, the most recent North American geographic area to establish a ZEV mandate using early action as a compliance tool alone. From the publicly available vehicle registration data, actual sales versus deliveries,¹⁴ ZEV registrations grew at 42% per year on average during Quebec’s early action years and increased over 100% during the first two initial compliance years. (Figure 1 below)

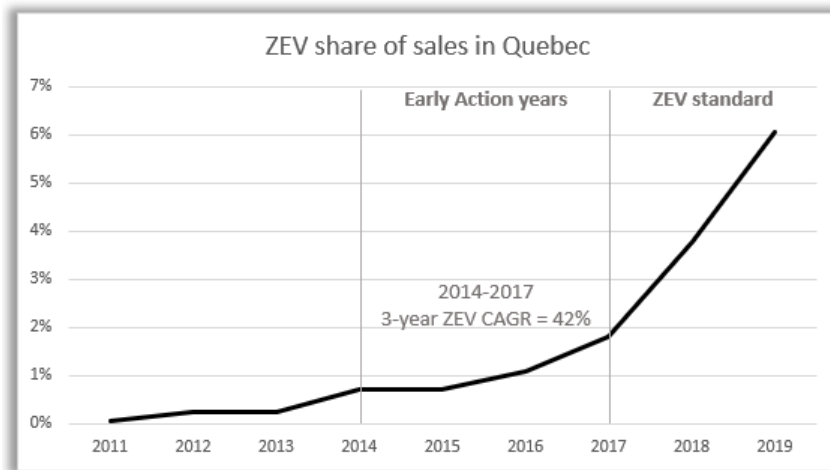


Figure 1. ZEV actual ZEV sales during early action and initial compliance years. Note: adoption took place in October, 2016, making a portion of 2015-2016 look back years that qualified for early action. Once ZEV passed, consumer adoption took hold as more models became available.

¹⁴ https://www.aveq.ca/actualiteacutes/statistiques-saaq-aveq-sur-lelectromobilite-au-quebec-en-date-du-31-decembre-2020-infographie#disqus_thread

Further if we directly apply the 42% early action growth experienced in Quebec to Washington, Washington should expect a similar growth trajectory, if not greater due to increased model availability by comparison to 2018, setting the state on a clear path to overcompliance.

Several additional benefits come from early action crediting. Importantly, by increasing deliveries sooner, a secondary market is also spurred sooner. More new EVs equates to higher adoption levels and has the potential to advance greater numbers of pre-owned and subsequently lower-cost EVs into the market. Additionally, higher EV presence furthers consumer awareness and advances private capital investment in charging infrastructure, as charging providers can reasonably anticipate ZEV deliveries translating to adoption and increased charging utilization rates.

As the transition to EVs continues to ramp over the next several years, due primarily to supply constraints surrounding battery production, global EV demand is expected to outstrip supply. New market EV-only manufacturers like Tesla are ramping production along with legacy automakers committing to the transition.¹⁵¹⁶ Many automakers, both legacy and new, have pending preorders for announced models not yet in production.¹⁷ When considering where to deliver vehicles, ZEV compliance plays a role. As an example, consider this hypothetical scenario. Legacy

¹⁵ <https://electrek.co/2021/06/23/lucid-10000-reservations-air-electric-luxury-sedan-not-bad/#:~:text=June%2023-,Lucid%20has%20now%20over%2010%2C000%20reservations%20for%20the%20Air,sedan%20and%20that's%20not%20bad&text=Lucid%20Motors%20confirmed%20that%20it,and%20a%20luxury%20electric%20sedan.>

¹⁶ <https://insideevs.com/news/437341/rivian-r1t-30-thousand-reservations/>

¹⁷ <https://www.electrive.com/2020/03/10/ford-counts-40000-pre-orders-for-the-mustang-e/#:~:text=Ford%20apparently%20has%20more%20than,from%20the%20Mach%2DE%20Forum.>

Automaker A has a backlog of orders of its ZEV model. It's ramping production but still has limited supply for several years. It needs to meet compliance in Oregon for MY 2022-2025 and deliver vehicles for compliance. Automaker A must make a business decision as to where to ship its limited supply of ZEV models. While several factors go into that decision point (vehicle manufacturing/delivery location, shipping costs, ZEV credit market value, etc.), Automaker A considers those factors when determining where to ship. However if Washington does not allow for early action credit banking, Automaker A has a simple decision – deliver the vehicle where it can count towards compliance. It simply makes business sense to do so leaving Washington with fewer deliveries through its initial compliance year by comparison.

Turning to the question of whether inclusion of early action crediting is substantive, which we believe it is not, necessarily. The Washington legislative findings,¹⁸ recognize the importance of adopting ZEV regulations. The findings conclude that, “the California motor vehicle standards will increase consumer choices of cleaner vehicles, provide better warranties to consumers, and provide sufficient air quality benefit to allow additional business and economic growth in the key airsheds of the state while maintaining conformance with federal air quality standards.” The findings provided by the legislature upon passage, and Governor Inslee upon signing, while not “explicitly and specifically dictated by statute,” should compel the Department of Ecology to adopt regulations that can result in the greatest potential to accelerate EV adoption and overcompliance with the standard. For the reasons provided above as well as others, Tesla believes that the Department can and should provide the greatest opportunity to address consumer choice, reduce

¹⁸ <https://app.leg.wa.gov/rcw/default.aspx?cite=70A.30.010>

emissions, health care costs and equity sooner by including the early action crediting mechanism within the regulations.

IV. ACT Regulations should move forward without delay

Tesla supports Washington's proposed adoption of California's ACT Rule. The standards set by the ACT rule will play an invaluable role in ensuring sustained and systematic progress in transitioning Washington's medium and heavy-duty vehicles to zero emission technologies. Such a transition is fundamental to the state's climate and electric vehicle goals of reducing greenhouse gas (GHG) emissions, improving air quality, increasing the adoption of electric vehicles, and enhancing public health and quality of life. As one of the first states to adopt the California rule, Washington would be among the first to realize the enormous benefits from the deployment of medium and heavy duty zero emission vehicles, demonstrating the state's continued leadership toward transportation electrification. Many Washington's communities, especially those historically impacted by environmental injustice, work and live adjacent to the logistics and freight corridors that experience the heaviest traffic from heavy-duty vehicles in the state, and therefore deal with the largest amount of transportation induced air pollution. According to Washington's Department of Ecology, "[m]ore than four million people live or work close to transportation corridors where they are exposed to high levels of diesel exhaust,"¹⁹ which the state has identified as "the toxic air pollutant most harmful to Washington's citizens."²⁰ This rule can address these inequities of health and pollution by accelerating the electrification of the diesel trucks primarily located in these communities.

We appreciate and support Governor Inslee's signing of the multi-state memorandum of understanding (MOU) with 14 other states and the District of Columbia to zero-out emissions

¹⁹ <https://apps.ecology.wa.gov/publications/documents/1802023.pdf>

²⁰ *Id.*

from new medium- and heavy-duty trucks and buses by 2050. The Rhodium Group in a recent analysis found that the MOU “would reduce US oil demand by 138 to 144 million barrels cumulatively by 2035, depending on the pace of future economic recovery. Its impact grows substantially over time as the stock of medium and heavy-duty trucks turns over, resulting in a cumulative reduction of 709 to 740 million barrels by 2045. If the MOU were expanded nationally, the impact would increase six-fold.”²¹ This reduced oil demand would lead to drastic reductions in GHG emissions from the transportation sector. “The current MOU could reduce 277 to 289 MMT CO₂ by 2045, on a cumulative basis, and reduce annual GHG emissions from medium and heavy-duty trucks by 11 MMT or 1% of US truck emissions in 2035, and 35 MMT or 2% of total US truck emissions in 2045. Expanding the MOU nationally has the potential to completely transform the US medium and heavy-duty fleet, which would be more than half electric by 2045. This would result in an estimated 1.8 to 1.9 billion metric tons of cumulative emissions reductions by 2045, and annual GHG emission reductions of 70 MMT or 5% of US truck emissions in 2035, climbing to 252 MMT or an 18% reduction in US truck emissions in 2045, relative to the baseline.”²² While the MOU is important, it will do nothing to reduce emissions unless the signatories to the MOU actually enact the recommended actions found therein. The ACT Rule is an important step forward to seeing actual emissions reductions in Washington.

Tesla offers the following additional comments regarding both supply and demand of zero emission trucks.

A. Consumer Demand for Zero Emission Medium and Heavy-Duty Vehicles is Strong

²¹ <https://rhg.com/research/states-zero-emission-vehicles/>

²² *Ibid.*

The ACT rule is reasonable given the level of demand that can be observed in the marketplace. On the heavy-duty side, since unveiling the Tesla Semi in late 2017, a significant number of fleets with substantial freight needs have placed reservations for the truck, indicating broad industry demand for heavy-duty electric vehicles. These fleets will be deploying the Tesla 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. Tesla estimates that the time to recoup the investment in a Tesla Semi, given the operational savings it provides customers compared to a conventional class 8 truck, will be approximately two to three years (class 8 diesel trucks have a 15 year average lifetime). 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.

B. The Availability of Zero Emission Medium and Heavy-Duty Vehicles is Expanding

Tesla is not alone in its efforts to manufacturer electrified medium and heavy-duty vehicles, with several other major manufacturers announcing plans to make

zero emission Class 8 trucks.²³²⁴ A similar picture emerges in the context of electric pick-up trucks, with a number of major legacy and new automakers unveiling plans to manufacture electric pick-up trucks.²⁵²⁶ Tesla anticipates that most – if not all – of these offerings would fall within the Class 2b-3 class. According to a recent report from CalStart,²⁷ last year there were 95 models of zero emission medium and heavy-duty vehicle models in commercial production, and that number is set to increase by nearly 78% to 169 models by the end of this year.

Strong consumer demand helps drive investments from vehicle manufacturers. Yet, strong regulations that set a clear direction for industry, such as the ZEV rule and the ACT rule, accelerate the pace of innovation and ensure the industry actually makes these vehicles available to consumers. With growing demand and wide availability, supported by a strong regulatory framework, the broader industry could easily exceed the targets in the rule, giving momentum towards meeting state emission reduction goals.

For all the reasons discussed herein, Tesla strongly supports the adoption of the Advanced Clean Truck Rule in Washington. It is critical that other states quickly join California in enacting manufacturer sales targets for medium and heavy duty zero emission trucks. This action is both timely and appropriate given the current trends in the market and will further establish Washington as a national leader on transportation electrification, building on the incredible work the state has already done to support the light duty market.

²³ “8 electric truck and van companies to watch in 2020”; Shane Downing, GreenBiz, January 13, 2020. <https://www.greenbiz.com/article/8-electric-truck-and-van-companies-watch-2020>

²⁴ “Big Rigs Begin to Trade Diesel for Electric Motors”, Susan Carpenter, New York Times, March 19, 2020; <https://www.nytimes.com/2020/03/19/business/electric-semi-trucks-big-rigs.html>

²⁵ *Id.*

²⁶ <https://www.ford.com/trucks/f150/f150-lightning/2022/>

²⁷ <https://calstart.org/zero-emission-model-numbers-expected-double-2023/>



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