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National Highway Traffic Safety Administration
Docket Management Facility, M–30
U.S. Department of Transportation
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1200 New Jersey Avenue SE
Washington, DC 20590
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National Highway Traffic Safety Administration, Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027– 2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030–2035, Docket No. NHTSA-2023-0022, 88 Fed. Reg. 56128 (August 17, 2023)

To Whom It May Concern:

Pursuant to the National Highway Traffic Safety Administration's (NHTSA) proposed *Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027– 2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030–2035*, Docket No. NHTSA-2023-0022, 88 Fed. Reg. 56128 (Aug. 17, 2023), Tesla, Inc. (Tesla) submits the following comments in response to the agency's proposal.

Tesla further notes that it is a member of the Zero Emission Transportation Association (ZETA) and incorporates by reference the comments submitted by the organization.[1]

For the reasons discussed below, Tesla urges NHTSA to adopt Alternative PC6LT8 for the light-duty standards and HDPUV14 for the heavy-duty pickup standards.

I. Introduction

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 and other greenhouse gases - from the transportation and power sectors.[2]

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

[1] Zero Emission Transportation Association (ZETA) is the first industry-backed coalition of its kind advocating for 100% of vehicles sold by 2030 to be electric vehicles (EVs). Achieving this goal will create hundreds of thousands of new jobs, secure American global EV manufacturing leadership, dramatically improve public health, and significantly reduce carbon pollution; See https://www.zeta2030.org/

[2] See, Tesla, Master Plan Part 3 (Apr. 5, 2023) *available at* https://www.tesla.com/ns_videos/Tesla-Master-Plan-Part-3.pdfhttps://www.tesla.com/ns_videos/Tesla-Master-Plan-Part-3.pdf

electricity.[3] Consistent with this effort, recently, Tesla was ranked as the world leader in the transition to vehicle electrification.[4]

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 mid-sized sedan, and the Model Y mid-sized SUV. As an EV-only manufacturer, as the EPA recognized in its *2022 Automotive Trends Report*, Tesla had by far the lowest carbon dioxide emissions (0 g/mi) and highest fuel economy (124 miles per gallon equivalent) of all large vehicle manufacturers in MY 2021.[5] Additionally, in December 2022, Tesla initiated delivery of its Tesla Semi Class 8, day cab truck[6] and, as described below, will start commercial production and delivery of its Cybertruck[7] later in 2023.

Tesla is also deeply committed to ensuring the U.S. remains a leader in advanced manufacturing. All Tesla vehicles sold in the U.S. are manufactured in the U.S. 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 most American made car on the market, and Model X and Model S followed as numbers three and four respectively.[8] NHTSA, in this rulemaking, confirms Tesla has the highest OEM sales weighted percent U.S content and 100% of the vehicle, engine, and transmission assembly in each Tesla vehicle sold in the U.S. occurs in the U.S.[9] In doing so, Tesla has become a leader in advanced and efficient manufacturing that allows for sale of the Model 3 and Model Y at prices below the average new U.S. vehicle.[10] *See Figure 1: Tesla Prices Compared to the Average New Car Price*.

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[3] See, Tesla, Impact Report 2022 (Apr. 24, 2023) *available at* https://www.tesla.com/ns_videos/2022-tesla-impact-report-highlights.pdf

[4] See, ICCT, The Global Automaker Rating 2022: Who Is Leading the Transition to Electric Vehicles? (May 31, 2023) *available at* https://theicct.org/publication/the-global-automaker-rating-2022-may23/

[5] EPA, The 2022 EPA Automotive Trends Report, Greenhouse Gas Emissions, Fuel Economy, and Technology Since 1975 (Dec. 2022) at 10, 13 *available at* https://www.epa.gov/automotive-trends/download-automotive-trends-report#Full%20Report

[6] See, Tesla, Tesla Semi Delivery Event (Dec. 1, 2022) *available at* https://livestream.tesla.com/https://livestream.tesla.com/; See generally, Tesla, Semi: The Future of Trucking *available at* https://www.tesla.com/semihttps://www.tesla.com/semi

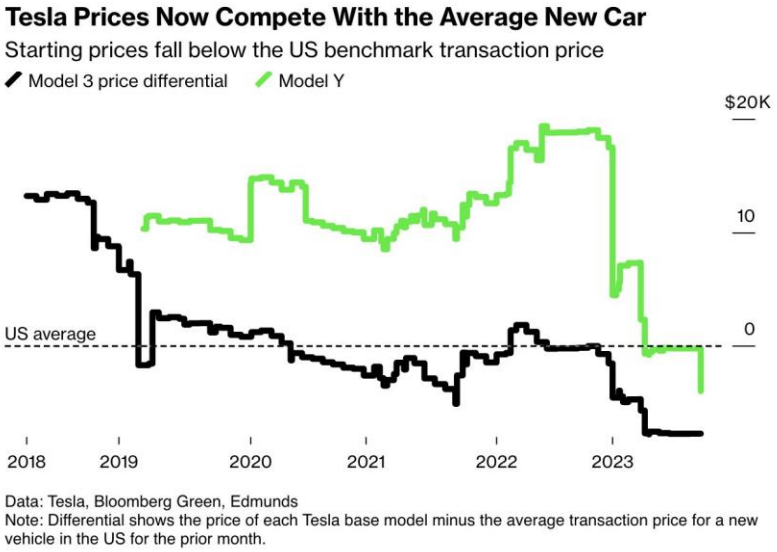
[7] Tesla, Cybertruck, *available at* https://www.tesla.com/cybertruckhttps://www.tesla.com/cybertruck

[8] 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

[9] NHTSA, Draft Technical Support Document: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond (July 2023) at 2-34, Table 2-14: Sales Weighted Percent U.S. Content by Manufacturer, by Light-Duty Regulatory Class *available at* https://www.nhtsa.gov/document/cafe-2027-2032-hdpuv-2030-2035-draft-technical-support-document.

[10] Bloomberg, Tesla Drops Model Y Starting Price Below the Average US Vehicle (April 25, 2023) *available at* https://www.bloomberg.com/news/articles/2023-04-25/tesla-drops-model-y-starting-price-below-the-average-us-vehicle#xj4y7vzkg

Figure 1: Tesla Prices Compared to the Average New Car Price



In the U.S., Tesla conducts vehicle manufacturing and assembly operations of vehicles, its advanced 4680 lithium-ion battery cells, and battery packs at its factories in Fremont, CA.[11] It also produces Megapack, a utility-scale grid storage battery, at its factory in Lathrop, CA.[12] In 2021, Tesla's investment in California helped deliver $10.4 billion ($28.5 million per day) to California's gross state product.[13]

At Gigafactory Texas in Austin, TX, Tesla produces the Model Y crossover, and Cybertruck and manufactures Tesla's new, advanced 4680 lithium-ion battery cell, cathode, and battery packs. Upon completion, Gigafactory Texas will invest over $10B in factory development and create at least 10,000 new jobs.[14]

In Sparks, NV at Gigafactory Nevada, Tesla produces its Class 8 truck, the Semi, electric drive trains and manufactures advanced battery packs and energy storage products. Since 2014, a total of $17.1 billion in economic output has been generated because of the Gigafactory's operations.[15] On January 2023, Tesla announced a $3.6B expansion of the facility in large part to scale manufacturing of the Semi.[16]

At Gigafactory New York in Buffalo NY, Tesla produces its DC-fast charging (DCFC) equipment for the Tesla Supercharger network, solar energy products, power electronics and supports Tesla autonomous vehicle

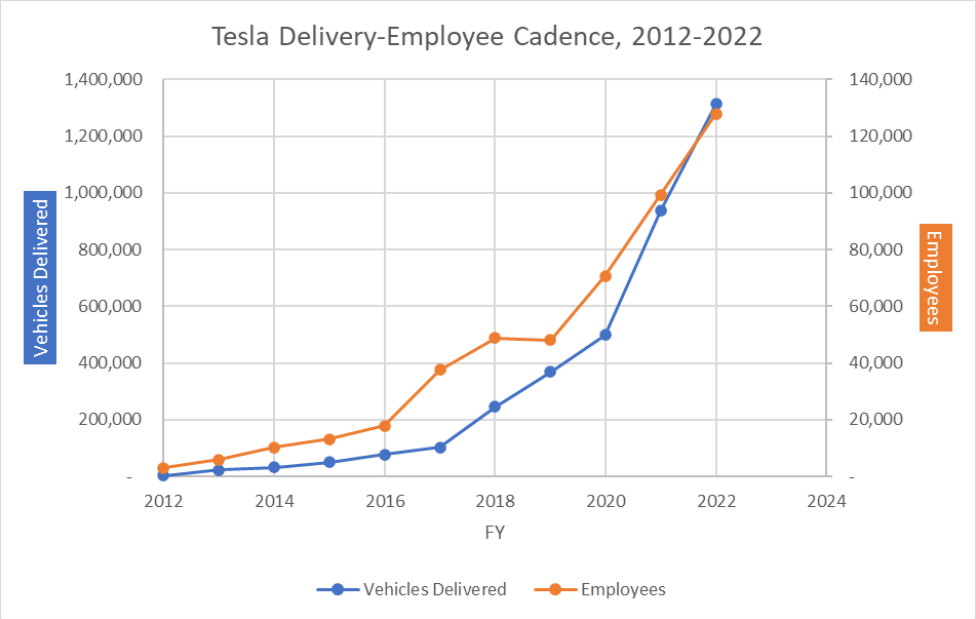
[11] See, Inside EVs, Tesla 4680 Cell Production Ramping Quickly, Won't Impact Cybertruck (Oct. 20, 2022) *available at* https://insideevs.com/news/617588/tesla-4680-cell-ramp-wont-impact-cybertruck-other-models/
[12] Tesla, Megapack *available at* https://www.tesla.com/en_eu/megapackhttps://www.tesla.com/en_eu/megapack
[13] IHS Markit, The Economic Contributions of Tesla to the California Economy, 2018–2021 (October 2022) (detailing Tesla's positive economic impact in California) *available at* https://www.tesla.com/blog/teslas-california-footprint
[14] See e.g., Austin-American Statesmen, Elon Musk says hiring for Tesla's Austin factory could hit 10,000 workers, (March 31, 2021) *available at* https://www.statesman.com/story/business/2021/03/31/elon-musk-says-teslas-austin-site-hire-ten-thousand-2022/4826859001/; See also, Reuters, Musk says Tesla's Texas factory is $10 bln investment over time (Dec. 15, 2021) *available at* https://www.reuters.com/technology/musk-says-teslas-texas-factory-is-10-bln-investment-over-time-2021-12-16/
[15] See, Governor of Nevada's Office of Economic Development, Tesla, New Application Pursuant to Senate Bill No. 1 (2014 Special Session) (March 2, 2023) at 4 *available at* https://goed.nv.gov/wp-content/uploads/2023/02/3-A.-Tesla-Inc.-Board-Packet-PG-1-19.pdf
[16] Reuters, Tesla plans $3.6 bln Nevada expansion to make Semi truck, battery cells (Jan. 25, 2023) *available at* https://www.reuters.com/markets/deals/tesla-invest-over-36-bln-nevada-build-two-new-factories-2023-01-24/#:~:text=Jan%2024%20(Reuters)%20%2D%20Tesla,its%20new%204680%20battery%20cell.

program. Tesla also manufactures its 750-kW Semi charger in Buffalo. To date, Tesla's cumulative investment and spend in New York State has reached over $1.3B.[17]

Additionally, Tesla manufacturers, builds, and services highly automated, high-volume manufacturing machinery at its facility in Brooklyn Park, MN,[18] and operates a tool and die facility in Grand Rapids, MI.[19]

Collectively, Tesla's U.S. facilities support over 70,000 employees and are responsible for billions of dollars of U.S. investment and economic activity each year. See *Figure 2: Tesla Global Delivery Volume and Job Growth* (showing Tesla's rapid growth in worldwide vehicle delivery and employment levels from 2012-2022).

Figure 2: Tesla Global Delivery Volume and Job Growth



Importantly, Tesla is not only a manufacturer but is also continuing to grow its large network of retail stores, vehicle service centers, collision centers, and electric vehicle charging stations to accelerate and support the widespread adoption of electric vehicles.[20] Tesla operates the country's largest and most reliable public EV charging network. Since 2012, Tesla has invested heavily in siting, building, operating, and maintaining charging infrastructure. In 2013, Tesla had just eight Supercharger Stations in North America. Today, Tesla owns and operates the largest DCFC network in the world, known as the Tesla Supercharging network.[21]

The Tesla Supercharger network reliably serves quick charging needs for BEV drivers on road trips with limited time to charge, and without access to charging at home or at the workplace.[22] As of September 2023, there are more than 4,900 Supercharger locations globally and more than 50,000 Supercharger stalls. In the U.S., there

[17] Tesla, Riverbend Report Annual Report to Empire State Development (Feb. 1, 2023); See also, Buffalo Business First, Tesla workforce grew 16% since end of 2021 in Buffalo (Feb. 8, 2023) *available at* https://www.bizjournals.com/buffalo/news/2023/02/08/tesla-reports-job-growth-in-buffalo.html
[18] See, Tesla, Perbix *available at* https://www.tesla.com/perbixhttps://www.tesla.com/perbix
[19] See, Tesla, Manufacturing: Build a Sustainable Future *available at* https://www.tesla.com/manufacturing
[20] See, 86 Fed. Reg 43726, 43799 (Aug. 10, 2021) ("Electrification of the vehicle fleet is likely to affect both the number and the nature of employment in the auto and parts sectors and related sectors, such as providers of charging infrastructure.").
[21] See, Tesla, Supercharger *available at* https://www.tesla.com/supercharger
[22] Tesla, Impact Report 2022 at 70 (showing Tesla Supercharger network 2022 uptime reliability at 99.95%).

are over 2,100 Supercharger locations and more than 23,500 Supercharger stalls capable of charge rates up to 250 kW. Superchargers are located in all fifty States, the District of Columbia, and Puerto Rico, representing approximately 60% of the DCFC plugs operational today in the U.S. In February 2023, in conjunction with the White House, Tesla announced it will open at least 3,500 Superchargers in the U.S. to non-Tesla vehicles.[23] Further, recently Ford announced it will be adopting the North America Charging Standard (NACS) and will partner with Tesla to allow Ford vehicles – including BEV like Mach-E and the F-150 Lightning – to utilize the Tesla Supercharger network.[24] Similarly, General Motors,[25] Kia,[26] Volvo,[27] Polestar,[28] Rivian,[29] Mercedes Benz,[30] Nissan,[31] Honda,[32] Acura,[33] Hyundai[34] and other manufacturers have announced that they will also be adopting

[23] See, President Joe Biden (@POTUS) on Twitter (February 15, 2023) *available at* https://twitter.com/POTUS/status/1625983221279125504?s=20https://twitter.com/POTUS/status/1625983221279125504?s=20

[24] Ford, Ford EV Customers to Gain Access To 12,000 Tesla Superchargers; Company to Add North American Charging Standard Port in Future EVs (May 25, 2023) *available at* https://media.ford.com/content/fordmedia/fna/us/en/news/2023/05/25/ford-ev-customers-to-gain-access-to-12-000-tesla-superchargers--.html

[25] GM, General Motors Doubles Down on Commitment to a Unified Charging Standard and Expands Charging Access to Tesla Supercharger Network (June 8, 2023) *available at* https://www.prnewswire.com/news-releases/general-motors-doubles-down-on-commitment-to-a-unified-charging-standard-and-expands-charging-access-to-tesla-supercharger-network-301846599.html

[26] Kia America, KIA To Adopt North American Charging Standard in the Fourth Quarter of 2024 (Oct. 5, 2023) *available at* https://www.prnewswire.com/news-releases/kia-to-adopt-north-american-charging-standard-in-the-fourth-quarter-of-2024-301947928.html

[27] Car & Driver, Volvo Is Latest Automaker to Agree to Adopt Tesla's Charge Port (June 27, 2023) *available at* https://www.caranddriver.com/news/a44350518/volvo-electric-vehicles-tesla-charging-2025/

[28] Businesswire, Polestar will adopt North American Charging Standard to enable access to Tesla Supercharger network in USA and Canada (June 29, 2023) *available at* https://www.businesswire.com/news/home/20230629093526/en/Polestar-will-adopt-North-American-Charging-Standard-to-enable-access-to-Tesla-Supercharger-network-in-USA-and-Canada

[29] Rivian, Rivian Accelerates Electrification through Adoption of North American Charging Standard and Access to Tesla's Supercharger Network for Rivian Drivers (June 20, 2023) *available at* https://www.businesswire.com/news/home/20230620267452/en/Rivian-Accelerates-Electrification-through-Adoption-of-North-American-Charging-Standard-and-Access-to-Tesla%E2%80%99s-Supercharger-Network-for-Rivian-Drivers

[30] Businesswire, Mercedes-Benz Expands Charging Options for Customers: Access to Tesla Supercharger Network in North America While Building Its Own High-Power Charging Network (July 7, 2023) *available at* https://www.businesswire.com/news/home/20230706787814/en/

[31] Businesswire, Nissan to Adopt North American Charging Standard (NACS) for Ariya and Future EV Models (July 19, 2023) *available at* https://www.businesswire.com/news/home/20230719032556/en/Nissan-to-Adopt-North-American-Charging-Standard-NACS-for-Ariya-and-Future-EV-Models

[32] Autoblog, Honda, Acura EVs will adopt Tesla's NACS charging port (August 18, 2023) *available at* https://www.autoblog.com/2023/08/18/honda-acura-evs-will-adopt-teslas-nacs-charging-port/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ3JlZW5jYXJyZXBvcnRzLmNvbS8&guce_referrer_sig=AQAAAAWouRRKG1uotcWgJO3UQQu6UP3jc1AAb9cSqbVyuVwHjivKkjPKRdPy4KYEWB6kPysRf5pOWDL_7A6UsAfDAjEOsE0jDvbkeQrayLAWQhQ7VwrUDwrJNntHrX4xIcIU1gv1cOptiZzkTUk9iStEQl2MV6_I00WLL5crnis6wmIi

[33] Id.

[34] PRNewswire, Hyundai Electric Vehicles to Add North American Charging Standard (October 5, 2023) *available at* https://www.prnewswire.com/news-releases/hyundai-electric-vehicles-to-add-north-american-charging-standard-301948002.html

the NACS standard and several electric vehicle charging manufacturers, including ABB,[35] Flo,[36] and BTC Power[37] also announced that they would be supplying NACS capable chargers moving forward. Numerous charging providers have also followed suit.[38]

A. Tesla Cybertruck Heavy-Duty Pickup Is Coming to Market

Announced in November 2019, Tesla's Cybertruck is a battery electric (BEV) heavy-duty pickup truck built with an exterior shell made from Ultra-Hard 30X Cold-Rolled stainless-steel structurally that uses ultra-strong glass and polymer-layered composite that can absorb and redirect impact force for improved performance and damage tolerance. Cybertruck has a payload capacity of up to 3,500 pounds and adjustable air suspension with the ability to pull near infinite mass and a towing capability of over 14,000 pounds.

Consistent with NHTSA regulations, Cybertruck will be classified as Class 2-3b truck and regulated under the proposed heavy-duty pickup (HDPUV) fuel economy standards. See *Figure 3: Cybertruck Anticipated Classification*. Tesla requests that NHTSA update its data and modeling for the final HDPUV standards with the provided information on Cybertruck.[39]

[35] ABB, ABB E-Mobility is Adding North American Charging Standard (NACS) as an Option to Our Products (June 9, 2023) *available at* https://twitter.com/ABBNorthAmerica/status/1667139962830041091https://twitter.com/ABBNorthAmerica/status/1667139962830041091

[36] FLO, FLO Stations to Offer North American Charging Standard (NACS); Supports Broader Use (June 8, 2023) *available at* https://www.flo.com/news/flo-stations-to-offer-north-american-charging-standard-nacs-supports-broader-use/ /

[37] BTC Power, BTC POWER To Introduce North American Charging Standard (NACS) Compatibility For Enhanced EV Charger Accessibility (June 20, 2023) *available at* https://btcpower.com/blog/btc-power-to-introduce-north-american-charging-standard-nacs-compatibility-for-enhanced-ev-charger-accessibility/

[38] See, EV Station, Tesla NACS Charger Adoption Tracker *available at* https://evstation.com/tesla-nacs-charger-adoption-tracker/

[39] 88 Fed. Reg. 56128. 56140 (Aug. 17, 2023).

Figure 3: Cybertruck Anticipated Classification

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II. NHTSA's Inclusion of BEVs in the Light-Duty Baseline Fleet Is Consistent with EPCA

As the agency notes, it rightly assesses the pace and level of electrification within the baseline of the entire light-duty fleet. Establishing this baseline, including BEVs, is a prerequisite to the agency complying with the limitations of its standard setting authority found at 49 U.S.C. § 33902(h). In assessing and projecting the annual level of BEV adoption, NHTSA can determine the subset of the vehicle fleet that will remain internal combustion engine (ICE) vehicles. It is this ICE vehicle subset that NHTSA then uses to determine what is the maximum feasible fuel economy in determining the stringency of the CAFE standards.

Further, in evaluating "technological feasibility," Section 32902(h) does not prevent the agency "from being aware of the existence of dedicated alternative fueled vehicles that are already being produced for other reasons besides CAFE standards."[40] Rather a full and deep analysis of the role BEVs will play in the baseline light-duty vehicle fleet is consistent with the Energy Policy Conservation Act (EPCA).

In its baseline analysis, NHTSA must consider all technologies that will be feasible of being implemented in the relevant model years under consideration, and not limit its consideration to legacy technologies which are currently in commercial use.[41] In evaluating another portion of EPCA, the D.C. Circuit explained this breadth finding that "technological feasibility" simply means "capable of being carried out." *NRDC v. Herrington*, 768 F.2d 1355, 1392 (D.C. Cir. 1985). The court went on to hold that under that definition, the Government could not simply exclude even non-marketed prototypes as not "technologically feasible" on a blanket basis. Id. at 1403. NHTSA has applied this definition in the EPCA context as well, explaining that "the agency is not limited in determining the level of new standards to technology that is already being commercially applied at the time of the rulemaking, a consideration which is particularly relevant" for a rule extending for multiple years.[42] This is not a new interpretation: NHTSA has previously explained that "'[t]echnological feasibility' means whether a particular method of improving fuel economy can be available for commercial application in the model year for which a standard is being established."[43]

As the agency has appropriately recognized, NHTSA can only fully assess what future fuel economy standards are "maximum feasible" by determining how much manufacturers can feasibly increase fuel economy over baseline fuel-economy levels they already have achieved and are projected to achieve in relevant model years without further regulation.[44] Section 32902(h)(1)'s directive not to "consider the fuel economy of [alternative-fuel] automobiles" in determining maximum achievable fuel economy does not also require NHTSA to exclude alternative-fuel vehicles when determining that baseline. As the agency has explained, its starting point

[40] Id. at 56319.
[41] See e.g., Id. at 56201 ("Accurately calculating the pre-existing fleet fuel economy level is crucial because it marks the starting point for determining what further efficiency gains will be feasible during the rulemaking timeframe.")
[42] 77 Fed. Reg. 62624, 62668 (Oct. 15, 2012).
[43] 73 Fed. Reg. 24352, 24363 (May 2, 2008).
[44] NHTSA Brief, *Nat. Res. Defense Council v. NHTSA* (Nos. 22-1080 and consolidated cases) (filed March 21, 2023) at 35-38.

necessarily must reflect the fuel economy of the real-world baseline fleet so that its new standards are set at a level beyond what has already been achieved. *Id.*

Indeed, courts have described the EPCA as a "technology forcing" statute that contained mandatory fuel economy standards because "market forces . . . may not be strong enough to bring about the necessary fuel conservation which a national energy policy demands." *Center for Auto Safety v. Nat'l Highway Traffic Safety Admin.*, 793 F.2d 1322, 1339 (D.C. Cir. 1986) (quoting Senate Report); see also *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 358 (D. Vt. 2007) ("EPCA . . . was a technology-forcing statute"). "). Failure to consider technologies in the baseline that are capable of being implemented in the relevant model years under consideration thus would contravene the text and purpose of the EPCA and would be arbitrary and capricious. *See Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 42-43 (1983) (agency failure to consider the relevant factors is arbitrary and capricious); *cf. Southwestern Electric Power Company v. EPA*, 920 F.3d 999, 1017-18 (5th Cir. 2019) (finding agency acted arbitrarily and capriciously by setting standard based on outdated technology in violation of statutory instruction). Thus, NHTSA's baseline evaluation of the entire fleet's technological feasibility must naturally include an evaluation of technologies – including electrification - beyond those currently in commercial use, including advanced or cutting-edge vehicle technologies. It is within this context that Tesla provides the following information related to the adoption rates of BEV technology in the larger light-duty fleet.

A. The Current and Rapidly Evolving State of Vehicle Electrification Supports a More Robust Baseline and Standard

In general, NHTSA recognizes the acceleration of electrification technology being developed and deployed throughout the auto industry and notes "greater electrification in the mid- to longer-term is foreseeable."[45] Indeed, the agency acknowledges the "consistent feedback from vehicle manufacturers" is that they are reducing investment in ICE vehicles and increasing investments in BEVs.[46] Nevertheless, NHTSA's baseline suggests BEV technology market penetration rates that are low.[47] The agency should be aware of the numerous manufacturer statements announcing BEV production goals that encompass the timeframe of the proposed standard.[48] These announcements have continued to expand with Toyota, Hyundai, JLR, and Subaru, among

[45] 88 Fed. Reg. at 56318.
[46] Id. at 56156.
[47] Id. at 56206, Table II-11.
[48] See e.g., Reuters, At least 50% of Aston Martin car sales should be electric by 2030, says CEO (Oct. 19, 2021) *available at* https://www.reuters.com/business/autos-transportation/least-50-aston-martin-car-sales-should-be-electric-by-2030-says-ceo-2021-10-19/; Reuters, BMW investing $1.7 bln to build electric vehicles in U.S. (Oct. 19, 2022) *available at* https://www.reuters.com/business/autos-transportation/bmw-investing-17-bln-build-electric-vehicles-us-2022-10-19/; CNBC, Ford ups EV investments, targets 40% electric car sales by 2030 under latest turnaround plan (May 26, 2021) *available at* https://www.cnbc.com/2021/05/26/ford-ups-ev-investments-targets-40percent-electric-car-sales-by-2030-under-latest-turnaround-plan.html; Honda, Honda Announces Next Steps in Preparation for U.S. EV Production (March 15, 2023) *available at* https://global.honda/newsroom/news/2023/c230315aeng.html; Automotive Dive, Hyundai to invest $85B in EVs by 2030 (June 22, 2023) *available at* https://www.automotivedive.com/news/Hyundai-85-billion-Investor-Day-CEO-electric-vehicle-Ioniq-Kia-Genesis-batteries/653693/?utm_source=Sailthru&utm_medium=email&utm_campaign=Issue:%202023-06-22%20Automotive%20Dive%20%5Bissue:51564%5D&utm_term=Automotive%20Dive; Reuters, Jaguar Land Rover boosts investment to catch up in EV race (Apr. 20, 2023) *available at* https://www.reuters.com/business/autos-transportation/jaguar-land-rover-plans-invest-15-bln-pounds-electric-push-2023-04-19/?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top; Reuters, Kia Corp to produce electric vehicles in the U.S. from 2024, reports say (Sept. 19, 2022) *available at* https://www.reuters.com/business/autos-transportation/kia-corp-produce-electric-vehicles-us-2024-reports-2022-09-20/; Mazda, Mid-Term Management Plan Update and Management Policy up to 2030 (Nov. 22, 2022) *available at* https://newsroom.mazda.com/en/publicity/release/2022/202211/221122a.html; Reuters, Mercedes-Benz foresees EV-only production lines within a few years (Feb 21, 2022) *available at* https://www.reuters.com/business/autos-

others, recently announcing new commitments on BEVs.[49] Automakers and battery manufacturers have committed $115 billion to date to expand the production of EVs and batteries inside the U.S. and across North America.[50] NHTSA must ensure it utilizes these public commitments in its analysis of the industry and recognize shifts toward BEV technology in the marketplace is occurring for reasons outside of the CAFE standards setting process.

BEV deployment, like other technologies, will follow a S curve leading to a much more rapid pace of adoption between now and when the proposed regulations take hold. Indeed, many manufacturers have rapidly placed innovative technology across major portions of their new vehicle offerings in only a few model years.[51] BEV technology will continue to follow similar paths, and deployment has already been shown to outperform the traditional S curve.[52]

In 2023, initial figures indicated that in Q1 2023 the U.S. recorded the highest BEV sales increase (64%) ever.[53] This was followed up by Q2 2023 registering a 67% increase compared to the previous year.[54] Recent sales

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transportation/mercedes-benz-foresees-ev-only-production-lines-within-few-years-board-member-2022-02-21/; Reuters, Mitsubishi Motors to sell only EVs, hybrids by mid-2030s (March 10, 2023) *available at* https://www.reuters.com/business/autos-transportation/mitsubishi-motors-electrify-100-its-fleet-by-2035-yomiuri-2023-03-10/?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top; Bloomberg, Nissan Speeds Up Electric Transition Plans With New Targets (Feb. 26, 2023) *available at* https://www.bloomberg.com/news/articles/2023-02-27/nissan-speeds-up-electric-transition-plans-with-new-targets?cmpid=BBD022723_hyperdrive&utm_medium=email&utm_source=newsletter&utm_term=230227&utm_campaign=hyperdrive#xj4y7vzkg; Quartz, Stellantis posted a record year driven by a 41% rise in electric vehicles sales (Feb 22, 2023) *available at* https://qz.com/stellantis-2022-results-electric-vehicles-fiat-new-500-1850144027?utm_source=cbnewsletter&utm_medium=email&utm_term=2023-02-23&utm_campaign=Daily+Briefing+23+02+2023; Automotive Dive, Subaru has a more aggressive EV plan (Aug. 3, 2023) *available at* https://www.automotivedive.com/news/subaru-aggressive-ev-plan-electric-vehicles-hybrid-2030/689807/?utm_source=Sailthru&utm_medium=email&utm_campaign=Issue:%202023-08-03%20Automotive%20Dive%20%5Bissue:53237%5D&utm_term=Automotive%20Dive.

[49] See e.g., Toyota, Toyota Unveils New Technology That Will Change the Future of Cars (June 13, 2023) available at https://global.toyota/en/newsroom/corporate/39288520.html?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top; Reuters, Hyundai Motor Group to invest $18 bln in South Korean EV industry by 2030 (Apr. 11, 2023) (expanding annual EV production in Korea to 1.51 million units and global volume to 3.64 million units by 2030 *available at* https://www.reuters.com/business/autos-transportation/hyundai-motor-group-invest-18-bln-ev-industry-skorea-by-2030-2023-04-11/; Reuters, Jaguar Land Rover boosts investment to catch up in EV race (Apr. 20, 2023) (Investing $19 billion over the next five years in BEVs) *available at* https://www.reuters.com/business/autos-transportation/jaguar-land-rover-plans-invest-15-bln-pounds-electric-push-2023-04-19/?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top; Electrek, Subaru suddenly breaks electric following tripled annual profits, promises 4 crossover EVs in US (May 11, 2023*) available at* https://electrek.co/2023/05/11/subaru-electric-tripled-annual-profits-promises-4-crossover-ev-us/

[50] Alliance for Automotive Innovation, "Alliance for Automotive Innovation Reports New U.S. Electric Vehicle Data" (Sept. 25, 2023), *available at* https://www.autosinnovate.org/posts/press-release/2023-q2-get-connected-press-release; See also, Atlas Public Policy, U.S. Investments in Electric Vehicle Manufacturing (2023) (January 2023) (Projecting $210 billion to be invested in the United States by 2030, more than in any other country.) *available at* https://atlaspolicy.com/u-s-investments-in-electric-vehicle-manufacturing-2023/

[51] See e.g., Hula, et al, Analysis of Technology Adoption Rates in New Vehicles, *SAE International* (April 1, 2014) *available at* https://www.epa.gov/sites/default/files/2016-10/documents/2014-01-0781_0.pdf

[52] Ark Investment, Electric Vehicles Are Outperforming the Traditional S-Curve Dynamics (July 2, 2019) *available at* https://ark-invest.com/articles/analyst-research/ev-growth-outperforming-the-traditional-s-curve-dynamics/

[53] Strategy& (PwC), Electric Vehicle Sales Review Q1-2023: From 2024, every third commercially registered car could be an electric vehicle (May 15, 2023) *available at* https://www.strategyand.pwc.com/de/en/industries/automotive/electric-vehicle-sales-review-2023-q1.html

[54] PwC, Electric Vehicle Sales Review Q2-2023 (Aug. 10, 2023) *available at* https://www.strategyand.pwc.com/de/en/industries/automotive/electric-vehicle-sales-review-2023-q2.html

figures show that EVs represented 9.1 percent of new light-duty vehicle sales in the second quarter of 2023.[55] Continuing this rapid growth has led to estimates that by 2024 every third commercially newly registered car could be an electric vehicle.[56] This increase is consistent with other projections of rapid BEV sales growth. A new study published in the *Proceedings of the National Academies of Science* (PNAS) found that consumer valuation of increased range and lower prices will lead BEVs to being the majority of vehicles sold by 2030.[57] Some analysts predict that by 2026 60% of new models will be BEVs and PHEVs.[58] Others suggest recent forecasts, like those of IEA, still significantly underestimate the pace of electrification.[59] Still other analysts project that BEVs could account for 90% of sales by 2027.[60] Further, California's recent adoption of the ACC II rule, setting a 100 percent zero-emission vehicle (ZEV) sales standard by 2035, will also accelerate BEV adoption. As NHTSA recognizes, a number of states have already adopted ACC II and the list is growing.[61]

III. NHTSA's Balancing of Factors in Determining "Maximum Feasible" Must Weigh Heavily Towards Energy Conservation and Oil Savings

EPCA requires NHTSA to consider four factors in determining what levels of fuel economy standards (for passenger cars and light trucks) would be maximum feasible— technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy.[62] As the agency states, it "has broad discretion to balance the statutory factors in developing fuel consumption standards to achieve the maximum feasible improvement."[63] In exercising this discretion, Tesla believes that NHTSA's proper balancing of the factors must be implemented through a primary and fundamental emphasis on the need to conserve energy and the environmental impacts associated with fossil fuel use. Indeed, NHTSA explains it must "begin" the balancing with this factor.[64] Such a balancing is consistent with the statutory focus of EPCA, and an appropriate use of discretion given the accelerating risks and impacts from climate change.[65]

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[55] Alliance for Automotive Innovation, "Alliance for Automotive Innovation Reports New U.S. Electric Vehicle Data" (Sept. 25, 2023).
[56] Id.
[57] Proceedings of the National Academies of Science, Technology advancement is driving electric vehicle adoption (May 30, 2023) available at https://www.pnas.org/doi/10.1073/pnas.2219396120
[58] Automotive News, Car Wars study: By 2026, 60% of new models will be EV, hybrid (June 30, 2022) (citing a Bank of America Merrill Lynch Car Wars study predicting automakers will launch roughly 245 new models over the next four years.) *available at* https://www.autonews.com/sales/car-wars-study-2026-60-new-models-will-be-ev-hybrid?utm_source=dont-miss&utm_medium=email&utm_campaign=20220630&utm_content=hero-headline
[59] Sustainability by the Numbers, Electric cars are the new solar: people will underestimate how quickly they will take off (May 8, 2023*) available at* https://hannahritchie.substack.com/p/ev-iea-projections?utm_source=cbnewsletter&utm_medium=email&utm_term=2023-05-09&utm_campaign=Daily+Briefing+09+05+2023
[60] Ark Invest, Sales of Gas-Powered Vehicles Could Collapse 85% In the Next Five Years (Nov. 21, 2022) *available at* https://ark-invest.com/newsletters/issue-343/
[61] 88. Fed. Reg. at 56260; Bloomberg Law, More States Join California's Push to Phase Out Gas Cars by 2035 (May 16, 2023) *available at* https://news.bloomberglaw.com/environment-and-energy/more-states-join-californias-push-to-phase-out-gas-cars-by-2035
[62] See 88 Fed. Reg. at 56313.
[63] Id. at 56311.
[64] Id. at 56330 ("Again, by reducing the most fuel consumed, Alternative PC6LT8 would likely best serve the need of the U.S. to conserve energy in these respects. Regarding pollution effects, Alternative PC6LT8 would also result in the greatest reduction in CO2 emissions over time, and thus have the largest (relative) impact on climate change.").
[65] White House, Remarks by President Biden on Actions to Tackle the Climate Crisis (July 20, 2022) (President Biden stating, "I come here today with a message: As President, I have a responsibility to act with urgency and resolve when our nation faces clear and present danger. And that's what climate change is about. It is literally, not figuratively, a clear and present danger.") *available at* https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/07/20/remarks-by-president-

Both EPCA's "overarching purpose of energy conservation" and the clear Congressionally pronounced imperative to reduce fossil fuel use weigh in favor of this approach.[66] Congress passed the EPCA in 1975 "to provide for improved energy efficiency of motor vehicles[.]" 42 U.S.C. § 6201(5). Although EPCA has been amended, its energy conservation goal has remained preeminent, and NHTSA is required to consider it in its rulemaking.[67] *Center for Biological Diversity v. NHTSA,* 538 F.3d 1172, 1205 (9th Cir. 2008) ("[E]nergy conservation is the fundamental purpose of [EPCA] and an explicit statutory factor that NHTSA 'shall' consider.").

NHTSA has consistently interpreted ''the need of the United States to conserve energy'' to mean ''the consumer cost, national balance of payments, environmental, and foreign policy implications of our need for large quantities of petroleum, especially imported petroleum.''[68] As the agency further notes, within this interpretation it has included impacts of climate change since 1988.[69] This also has included the imperative to assess the environmental justice impacts resulting from climate change.[70] Any reasonable analysis of the need to reduce oil use from the U.S. transportation sector to provide domestic energy security *and* mitigate climate change impacts demands an agency balancing of discretion heavily weighted on the energy conservation factor in setting maximum feasible standards.

Under such appropriate balancing, NHTSA should adopt alternative PC6LT8 as the maximum feasible standard. Indeed, NHTSA concludes Alternative PC6LT8 would likely best meet the needs to conserve energy and address climate change.[71] For example, NHTSA highlights that from 2022 to 2050 alternative PC6LT8 is projected to decrease fuel consumption by 212 billion gasoline gallon equivalent (GGE) versus the preferred alternative which would have a 34 billion GGE decrease.[72] Similarly, PC6LT8 would decrease CO2 emissions (including upstream emissions) 16.3% from 2027 to 2100 versus the preferred alternative that would decrease emissions by 2.1% [73] Further, PC6LT8 is projected to have the highest monetized net benefits of all the alternatives.[74]

In contrast, NHTSA departs from these clear benefits based on uncertain speculation. The agency's rationale, that it "is concerned that the more stringent regulatory alternatives considered in this analysis may land past the point of economic practicability in this time frame,"[75] is anything but certain. While NHTSA, to be sure, is required to balance among the various statutory factors, that balancing cannot be based upon a "hunch" as it is here, and certainly such speculation on the agency's part cannot outweigh the decisive findings as to energy conservation demonstrated for Alternative PC6LT8.

A. Ancillary Oil Savings Benefits of PC6LT8

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biden-on-actions-to-tackle-the-climate-crisis/; See e.g. United Nations, The Climate Crisis – A Race We Can Win *available at* https://www.un.org/en/un75/climate-crisis-race-we-can-win

[66] See 88 Fed. Reg. at 56259, 56311, 56315, 56320, 56330, 56359 and 56373.

[67] EPCA's legislative history shows that Congress intended the word "conservation" to mean using less fuel, not merely "wasteful or destructive" use of fuel. *See, e.g.*, S. Rep. No. 94–179, at 2 (1975) ("[I]mprovements in fuel economy . . . will lead to an overall reduction in gasoline demand[.]"); H. Rep. No. 94–340, at 1 (1975) (the bill will "prevent growth in gasoline consumption" and "reduce existing demand levels" of gasoline).

[68] 88 Fed. Reg. at 56316.

[69] Id.at 56317.

[70] Id.

[71] Id. at 56330.

[72] Id. at 56323. See also, 88 Fed. Reg. at 56141 at Table I-8 (PC6LT reducing CO2 emission by 2,011 mmt vs PC2LT4 reducing CO2 emissions by 885 mmt).

[73] Id. at 56325.

[74] Id. at 56142, Table I-12.

[75] Id. at 56330.

While Tesla recognizes that NHTSA by statute cannot consider the fuel economy of BEVs in setting the maximum feasible standard, it does not prohibit other BEV-related considerations including the degree to which electrification will reduce oil consumption and mitigate the environmental impacts from climate change.[76] It is fully appropriate for the agency to recognize that while the industry may be nearing the limits of incumbent internal combustion technologies -- or those additional gains may occur at ever greater costs per amount of fuel saved -- alternative technologies are increasingly available in the market place because of competitive cost and performance capabilities.[77] Moreover, the agency should recognize that the relative cost of deploying a new fuel-saving technology for the internal combustion portion of a manufacturer's fleet necessarily will shrink over time, as that portion of the fleet grows smaller and smaller with the escalating deployment of BEVs.

Given the statutory constraints excluding BEVs from being considered in standards setting, NHTSA's projection for BEV penetration rates for all proposed alternatives remains consistent with its non-action alternative.[78] As noted above, however, the rate of BEV adoption is likely to outpace NHTSA's no-action modeling. Decreasing BEV production costs will lead OEMs to produce a greater number of BEVs While the stringency of PC6LT8 may impact OEMs differently and impose higher costs, as the agency itself acknowledges, in focusing on the overarching purpose of EPCA, adoption on the alternative can mean that standards may be harder to meet for some automakers than for others.[79] To the extent that adopting this alternative would have the ancillary result of incentivizing manufacturers to choose to further deploy greater levels of investment in more cost-effective BEV technology, this outcome is entirely consistent with EPCA's encouragement to produce alternative fueled vehicles.[80] Moreover, it does not mean that NHTSA has used BEVs in determining the stringency of the standards, rather it would be further aligned with recent Congressional direction to deploy greater levels of BEVs as embodied in the Bipartisan Infrastructure Law (IIJA)[81] and the Inflation Reduction Act (IRA).[82]

Consistent with EPCA's overarching purpose, numerous assessments also conclude that increasing deployment of BEVs will hasten the onset of peak fossil fuel demand and lead to falling oil demand.[83] The head of the IEA has said peak oil demand will occur this decade.[84] More directly, the IEA found that growing BEV sales and better

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[76] 86 Fed. Reg. at 49631, 49810.

[77] Bloomberg, Electric Cars Are Winning Out Because of Consumers, Not Politicians (Sept. 6, 2023) *available at* https://www.bloomberg.com/news/newsletters/2023-09-06/electric-cars-are-winning-out-because-of-buyers-not-politicians?cmpid=BBD090623_hyperdrive&utm_medium=email&utm_source=newsletter&utm_term=230906&utm_campaign=hyperdrive

[78] 88 Fed. Reg. at 56279.

[79] Id. at 56315, 56336, n. 584 (citing 87 Fed. Reg. at 25969)

[80] Id. at 56374, n. 662 (citing 87 Fed. Reg. 25955-6 (May 2, 2022).

[81] See e.g., Infrastructure Investment and Jobs Act, P.L 117-58 (Nov. 15, 2021), Sections 11401 and 13404 (investing $7.5 billion to build out the first-ever national network of EV chargers and establishing 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.)

[82] See e.g., Inflation Reduction Act, P.L. 117-169 (Aug. 16, 2022) at Sections 13401 (clean vehicle consumer incentive) and 13502 (battery manufacturing incentive).

[83] See e.g., Argonne National Lab, Assessment of Light-Duty Plug-in Electric Vehicles in the United States, 2010 – 2021 (Nov. 2022) *available at* https://publications.anl.gov/anlpubs/2022/11/178584.pdf
; BNEF, EVs Bite Into Oil Demand But It Will Take a While to Hurt (Aug. 9, 2021) *available at* https://about.bnef.com/blog/evs-bite-into-oil-demand-but-it-will-take-a-while-to-hurt/?utm_source=Email&utm_campaign=BNEF&utm_medium=Newsletter&utm_content=BNEFMonthInReviewAug&tactic=528440; S & P Global, EV Impact: Electric vehicle growth to sever oil from key market (Sept 22, 2021) *available at* https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/ev-impact-electric-vehicle-growth-to-sever-oil-from-key-market-66514990

[84] Fatih Birol, Peak fossil fuel demand will happen this decade, Financial Times, available at https://www.ft.com/content/f6155d7b-2ef7-4f62-a08a-b640b7e87fca?segmentId=114a04fe-353d-37db-f705-

efficiency of new ICE vehicles will together knock almost 900,000 barrels per day off 2023 oil demand growth.[85] The World Economic Forum predicts that the BEV revolution will eliminate the demand for 2 million barrels of oil a day by 2025.[86] This displacement will only continue to grow. One recent study found that by 2030 BEV deployment will result in oil demand for cars falling at over 1 million barrels per day (mbpd) every year and the endgame for one quarter of global oil demand will be in sight.[87] Others have found that BEVs will hasten an oil demand drop of between 10 and 20 million barrels per day by 2050.[88] Still others have found that BEVs are already displacing 1 million barrels per day and by the middle of the century, oil demand could be 21 million barrels less per day thanks to BEVs, compared to an entirely ICE global vehicle fleet.[89]

B. Ancillary Climate Mitigation Benefits of PC6LT8

As NHTSA notes, "By reducing the volume of petroleum-based fuel produced and consumed, adopting standards will thus mitigate global climate-related economic damages caused by accumulation of GHGs in the atmosphere, as well as the more immediate and localized health damages caused by exposure to criteria pollutants."[90] Recognizing limits in consideration of BEVs in setting the standard, NHTSA must still recognize the imperative of tackling climate change.[91]

Accordingly, the reduction of energy use from adopting PC6LT8 will significantly mitigate CO2 emissions and the environmental impacts of climate change. When utilizing its discretion on the maximum feasible balancing factors, NHTSA should look to the requisite level of emissions reduction in the new light-duty standards that drive the country toward the consensus UNFCCC and IPCC goal of limiting global warming to below 1.5 degrees Celsius compared to pre-industrial levels as its baseline.[92] The U.S. has adopted an international commitment to put policies in place consistent with this protective aim.[93] To meet this new target, the U.S. has committed to

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204c9a0a157b; See also, Oilprice.com, IEA Claims Global Oil Demand Will Peak Before 2030 (Sept. 12, 2023) *available at* https://oilprice.com/Energy/Energy-General/IEA-Claims-Global-Oil-Demand-Will-Peak-Before-2030.html

[85] Axios Generate, 4. Charted: What's displacing oil in road transport (Jan. 19, 2022) *available at* https://www.axios.com/newsletters/axios-generate-88687485-c269-4009-b0ea-b293be590fa3.html?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top

[86] CleanTechnica, WEF Sees Huge Drop In Oil Demand As Electric Vehicle Sales Rise (May 17, 2023) *available at* https://cleantechnica.com/2023/05/17/wef-sees-huge-drop-in-oil-demand-as-electric-vehicle-sales-rise/

[87] RMI, X-change: Cars: The end of the ICE age (Sept. 15, 2023) *available at* https://rmi.org/insight/x-change-cars/

[88] Columbia Center for Global Energy Policy, Forecasts of Electric Vehicle Penetration and its Impact on Global Oil Demand (Dec. 5, 2022) *available at* https://www.energypolicy.columbia.edu/research/report/forecasts-electric-vehicle-penetration-and-its-impact-global-oil-demand?utm_source=Center+on+Global+Energy+Policy+Mailing+List&utm_campaign=b05ed96fe4-EMAIL_CAMPAIGN_2019_07_22_06_27_COPY_01&utm_medium=email&utm_term=0_0773077aac-b05ed96fe4-102282861

[89] Bloomberg, Peak Oil Demand Is Coming but Not So Soon (Dec. 9, 2021) *available at* https://www.bloomberg.com/news/articles/2021-12-09/peak-oil-demand-is-coming-but-not-so-soon

[90] 88 Fed. Reg. at 56251.

[91] U.S. Department of Transportation, Climate Action ("Addressing climate change is one of the top priorities of the Department of Transportation.") *available at* https://www.transportation.gov/priorities/climate-and-sustainability/climate-action

[92] See generally, UNFCCC, Key aspects of the Paris Agreement *available at* https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/key-aspects-of-the-paris-agreement

[93] The United States of America Nationally Determined Contribution Reducing Greenhouse Gases in the United States: A 2030 Emissions Target (April 21, 2021) at 23. *available at* https://unfccc.int/sites/default/files/NDC/2022-06/United%20States%20NDC%20April%2021%202021%20Final.pdf ("As noted above, the United States' NDC is consistent with the Paris Agreement temperature goal of holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees Celsius

achieve a 50-52 percent reduction from 2005 levels in economy wide GHG pollution in 2030.[94] This commitment is part of the national effort to prevent significant domestic impacts from climate change[95] and embodies near term action commensurate with meeting this benchmark.[96]

IV. Consistent with EPCA and NHTSA's Own Analysis, the Agency Must Adopt the HDPUV14 Alternative

In setting the heavy-duty pickup and vans (HDPUV) standard under 49 U.S.C. §32902(k), the agency looks at appropriateness, cost-effectiveness, and technological feasibility. EPCA's distinct statutory authority for setting HDPUV standards allows the agency to expand consideration of BEV technologies in setting the standard.[97] Full consideration of BEV technology dictates that NHTSA must adopt the most stringent proposed alternative.

Across the entire heavy-duty sector electrification is occurring at a rapid pace. One recent report published two months *before* passage of the IRA found that revenue from the electric truck market was growing at a compound annual growth rate of 54%.[98] In another example, NREL has found economics will drive much faster adoption with ZEV sales possibly reaching 42% of all medium- and heavy-duty trucks by 2030.[99] NREL even projects out a scenario where ZEV sales reach >99% by 2045, and 80% of the sector transitions to ZEVs by 2050, reducing CO2 emissions by 69% from 2019.[100] A new analysis views the heavy-duty haul market as 50% electrifiable right now.[101] Still other analyses have found that most "market segments have the potential to be fully mature by 2025, with EV models available from multiple companies, including the majority of major OEMs

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above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change (Article 2.1(a)").

[94] White House: FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies (April 22, 2021) *available at* https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/

[95] See, President Biden, Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7619 (Feb. 1, 2021). *available at* https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad

[96] See, Nature, Realization of Paris Agreement pledges may limit warming just below 2 °C (April 13, 2022) *available at* https://www.nature.com/articles/s41586-022-04553-z?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top
(Limiting warming not only to 'just below' but to 'well below' 2 degrees Celsius or 1.5 degrees Celsius urgently requires policies and actions to bring about steep emission reductions this decade, aligned with mid-century global net-zero CO_2 emissions.)

[97] 88 Fed. Reg. at 56350.

[98] Charged, New Reports Analyze US Electric Truck Market and Global Off-Highway EV Market (June 16, 2022) *available at* https://chargedevs.com/newswire/new-reports-analyze-us-electric-truck-market-and-global-off-highway-ev-market/?utm_source=ChargedEVs.com+Email+Newsletter+Opt-in&utm_campaign=c0d41568d2-Daily+Headlines+RSS+Email+Campaign&utm_medium=email&utm_term=0_6c05923d39-c0d41568d2-343935020

[99] NREL, Decarbonizing Medium- & Heavy-Duty On-Road Vehicles: Zero-Emission Vehicles Cost Analysis (March 8, 2022) *available at* https://www.nrel.gov/docs/fy22osti/82081.pdf

[100] Id.

[101] NACFE, Charting the Course for Early Truck Electrification (May 2022) *available at* https://rmi.org/insight/electrify-trucking/?mc_cid=09f3d727f2&mc_eid=544476f6c1 (Analysis shows that approximately 65 percent of medium-duty trucks and 49 percent of heavy-duty trucks — are regularly driving short enough routes that they could be replaced with electric trucks that are on the market today) ; See also, NACFE, Electric Trucks Have Arrived: The Use Case For Heavy-Duty Regional Haul Tractors (May 2022) *available at* . https://nacfe.org/heavy-duty-regional-haul-tractors/?mc_cid=09f3d727f2&mc_eid=544476f6c1

that currently have 90% market share of the in-use fleet."[102] Further, it is predicted the pace of electrification in the truck sector will increase rapidly over the next decade.[103] Recent sales suggest this pace of adoption is already occurring.[104]

While NHTSA suggests that the technology for pickups has been slow to advance, there is an accelerating pace of electrification in the HDPUV segment. [105] As previously noted, this fall, Tesla is poised to start delivery of its Cybertruck. Consistent with NHTSA regulations, Cybertruck will be classified as Class 2-3b truck and will be regulated under the proposed HDPUV standards. See above, *Figure 3: Cybertruck Anticipated Classification.* In its analysis, however, the agency does not consider the addition of the Tesla Cybertruck to the HDPUV fleet and modeled only six manufacturers.[106] Tesla will begin delivery of Cybertruck in late 2023 with approximately [*Redacted – Confidential Business Information*] vehicles. Production will begin to scale thereafter with an anticipated production rate of [*Redacted – Confidential Business Information*] vehicles per week]. Delivery of this vehicle will further demonstrate that HDPUV electrification is appropriate, cost-effective, and technologically feasible a full six years prior to the MY 2030 start of the HDPUV standards. Accordingly, NHTSA should adjust its modeling to include Tesla's Cybertruck production and, in doing so, the agency will find additional support for adopting alternative HDPUV14.[107]

A. Proposed Alternative HDPUV14 Will Meet the Agency's Mandate Under EPCA

As discussed above, any balancing of EPCA factors in determining the stringency of the standards must prioritize energy conservation and mitigating climate change. Under such a focus, NHTSA should adopt HDPUV14 as it is "the overall environmentally preferable alternative for MYs 2030–2035 HDPUV FE standards because, assuming full compliance were achieved regardless of NHTSA's assessment of the costs to industry and society, it would result in the largest reductions in fuel use and CO2 emissions among the alternatives considered."[108] Further, HDPUV14 will contribute the most to improving U.S. energy security and has the largest net benefits.[109]

Despite lower net benefits, NHTSA has proposed to adopt HDPUV10 because of an increase in costs between HDPUV10 and HDPUV14. Tesla does not believe electrification results in increased costs. For example, as it has scaled production, Ford has dropped the price of the BEV F-150 Lightning.[110] The Tesla Cybertruck is anticipated to start at a price [*Redacted – Confidential Business Information*] and be competitively priced with the sector. As

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[102] MJ Bradley, Medium- & Heavy-Duty Vehicles: Market Structure, Environmental Impact, and EV Readiness (Aug. 11, 2022) at 6 *available at* https://www.mjbradley.com/reports/medium-heavy-duty-vehicles-market-structure-environmental-impact-and-ev-readiness

[103] See, Wood Mackenzie, US electric truck sales set to increase exponentially by 2025 (Aug. 10, 2020) *available at* https://www.woodmac.com/press-releases/us-electric-truck-sales-set-to-increase-exponentially-by-2025/ (finding there were just over 2,000 electric trucks on US roads at the end of 2019 and project this to grow to over 54,000 by 2025); BNEF, EV Outlook 2021 (heavy-duty electric trucks become economically attractive in urban duty cycles by the mid-2020s. Megawatt-scale charging stations and the emergence of much higher energy density batteries by the late 2020s result in battery electric trucks becoming a viable option for heavy-duty long-haul operations, especially for volume-limited applications.) *available at* https://bnefhttps://bnef.turtl.co/story/evo-2021/page/3/2?teaser=yes

[104] Fleet Owner, Pace of heavy EV sales quickens with two recent deals (Mar. 22, 2022) *available at* https://www.fleetowner.com/emissions-efficiency/electric-vehicles/article/21237583/pace-of-heavy-ev-sales-quickens-with-two-recent-deals

[105] 88 Fed. Reg. at 56350.

[106] Id. at 56356; See also, No Tesla in Preliminary RIA Appendix III – HDPUV Runs.

[107] See 88 Fed. Reg. at 56164 ("We have historically and intend again to update the data we use for the baseline fleet for the final rule if we receive more recent, high-quality data in time to use it for the final rule.")

[108] Id. at 56238.

[109] Id. at 56352

[110] Detroit News, Ford cuts F-150 Lightning prices by several thousand dollars (July 17, 2023) *available at* https://www.detroitnews.com/story/business/autos/ford/2023/07/17/ford-150-lightning-price-drop/70419653007/

demonstrated above, Tesla has also consistently reduced costs and retail price of its BEVs, and this will translate over the HDPUV space. With the HDPUV standards beginning in MY2030, the anticipated cost reductions in battery and electrification should further the pace of adoption. In contrast, internal combustion vehicle prices in this category have been increasing greatly increasing, thereby highlighting the competitiveness of an EV option.[111] In sum, there is more than a "credible case to be made in choosing HDPUV14."[112]

V. Other Proposed Amendments

In support of adopting final light-duty and HDPUV standards with additional stringency that promotes greater energy conservation and climate mitigation, Tesla also provides the following comments on several proposals.

A. NHTSA Should Fully Eliminate All Off-Cycle Credits Staring in Model Year 2027

In the proposal, NHTSA takes steps to phasedown the amount of allowed off-cycle credits with a declining cap on such credits from MY 2027 through MY 2030, reducing the menu of eligible credits, eliminating the five-cycle pathway, and allowing only ICE vehicles to generate off-cycle credits.[113] While sunsetting off-cycle credits is directionally positive, the agency should instead eliminate all off-cycle credit generation starting in MY 2027 for both the light-duty sector and HDPUVs.

Even if reduced, the continuing of off-cycle crediting creates asymmetry in the regulation favoring ICE vehicles, diverts research and development investment away from the best emissions reduction technology of electrification, and unnecessarily weakens the stringency of the standard.

Ongoing utilization of off-cycle credits in only ICE and PHEV vehicles creates a disparity in the type of vehicles that are rewarded for deploying efficiency technology. Originally created in 2010, the off-cycle menu credits consisted almost entirely of technologies (i.e., Active Engine Warmup, Active Transmission Warmup, Engine Stop Start) applicable *only* for use on ICE vehicles. Subsequently, in its 2012 rules, NHTSA and EPA moved forward the timeline for generating these credits from a proposed MY 2017 to MY 2014. As a result, the off-cycle program has its origins in technologies now over thirteen years old, and while designed to promote the more wide-scale deployment of such technologies, that rationale no longer holds. Despite being an antiquated part of the standards, NHTSA now proposes extending crediting rewards to manufacturers for deploying these technologies for what amounts to another eight model years. This means ongoing off-cycle credits will reduce the stringency of the proposed standard by rewarding many now commonly deployed efficiency technologies that provide, at best, negligible real-world emissions, or technology advancement benefits.

Moreover, previous analysis has shown that manufacturers' reliance on off-cycle credits diverts investment and deployment away from the most efficient vehicle technologies. Continuing these credits rewards old technology and, to the extent new technologies are deployed to generate off-cycle credits, focuses critical research and development budgets on tweaking legacy ICE and PHEV platforms rather than directing these budgets to full electrification and greater emissions reductions. In extending the off-cycle program and limiting it to ICE and PHEV vehicles, NHTSA's proposal only partially confronts this built-in bias toward legacy technology. Especially at a time when manufacturers should be further developing next generation BEV technology and eliminating legacy technology, the agency should not maintain such perverse incentives and should eliminate all off-cycle crediting starting in MY 2027.[114]

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[111] National Public Radio, An EV Future, Paid for by Gas (Oct. 10, 2023), *available at* https://www.npr.org/2023/10/10/1204963462/an-ev-future-paid-for-by-gas

[112] 88 Fed. Reg. at 56357.

[113] Id. at 56369-70.

[114] See generally, Bloomberg Hyperdrive, Carmakers Start to Starve Combustion Models Out of Existence (July 11, 2022) *available at* https://www.bloomberg.com/news/articles/2022-07-08/carmakers-start-to-starve-combustion-models-out-of-existence?cmpid=BBD070822_hyperdrive&utm_medium=email&utm_source=newsletter&utm_term=220708&utm_campaign=hyperdrive

B. NHTSA Should Create Parity on A/C Efficiency

Reducing short-lived climate pollutant emissions, such as HFC-134a, is a critical step toward mitigating climate change. Accordingly, Tesla supports actions to prohibit high GWP (> 150) refrigerants such as HFC-134a in new light-duty A/C systems post MY-2025.[115] As the proposal recognizes, the transition to lower GWP refrigerants is rapidly underway and all manufacturers can be compliant before the implementation of the proposed standards go into effect NHTSA's decision to limit voluntary A/C efficiency credits to only ICE vehicles is bad policy and inequitable. In proposing this limitation, the agency runs the risk of creating a disincentive for manufacturers of BEVs to continue to improve and deploy the most efficient cooling systems. The agency instead should consider a technology neutral approach allowing the crediting of all vehicles and increasing the stringency of the overall standard consistent with the additional level of credit generation that will accumulate with BEV A/C efficiency credit generation eligibility.

C. NHTSA's Continuation of Its Zero Upstream Emissions Approach is Appropriate (O gallons per 100 Miles)

Tesla supports the continued use of 0 gal/100 miles fuel consumption value for BEVs.[116] Under 49 U.S.C. §32901(10) "fuel" does not include electricity. Not only is 0 gal/100 miles consistent with the statute, but it is also consistent with net upstream emissions accounting for BEVs and ICE vehicles in these standards. BEVs represent the best emission reduction technology and have by far the lowest emissions impact of any vehicle technology, and, in this regard, should not be treated differently than ICE vehicles. To date, NHTSA has not gone outside the tailpipe to account for upstream petroleum production or petroleum refinery emissions in setting fuel economy standards for ICE vehicles. Instead, the dangerous emissions historically have been addressed through separate stationary source regulations.[117] Similarly, in utilizing a 0 gal/100 miles value, NHTSA will continue to recognize that fuel usage at electric generating units are otherwise addressed through EPA stationary source regulation.[118] Moreover, BEVs do not consume oil-derived fuels that are the focus of EPCA's conservation directives. Accordingly, Tesla asserts that continued use of 0 gal/100 miles is appropriate.

D. Credit Multipliers Decrease BEV Deployment and Should Not Be Extended or Renewed

Tesla supports the continuing elimination of advanced technology multipliers to ensure overall program integrity. Firmly establishing a one-for-one credit ratio is a more rational and transparent compliance mechanism and creates actual BEV vehicle deployment, thereby enabling deeper emission reduction targets.

Tesla asserts that providing credit multipliers can unnecessarily dampen actual deployment of BEVs and lead to backsliding on emission reductions. This is true regardless of the technology to which a multiplier may be attached and is not applicable just to BEVs. Accordingly, Tesla also supports the agency's elimination of the HDPUV credit multipliers for all BEVs after MY 2027.[119] Indeed, considering the high level of the current medium- and heavy-duty multiplier, rather than serve as an incentive, the multiplier is likely to further delay manufacturers from deploying large numbers of medium and heavy-duty BEVs in the U.S. until 2027.[120]

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[115] See 87 Fed. Reg. 76738 (Dec. 15, 2023).
[116] 88 Fed. Reg. at 56357.
[117] See e.g. EPA, Petroleum Refinery Sector Rule (Risk and Technology Review and New Source Performance Standards) *available at* https://www.epa.gov/stationary-sources-air-pollution/petroleum-refinery-sector-rule-risk-and-technology-review-and-new; EPA, Clean Air Act Standards and Guidelines for Petroleum Refineries and Distribution Industry *available at* https://www.epa.gov/stationary-sources-air-pollution/clean-air-act-standards-and-guidelines-petroleum-refineries-and
[118] EPA, Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants *available at* https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power
[119] 88 Fed. Reg. at 56371.
[120] Id. at 56371.

Tesla also agrees that the final HDPUV rules should not allow credit trading across averaging sets.[121] As the agency suggests, allowing such trading will distort the marketplace, decrease the predictability, integrity, and creditability of the rule's benefits, and may unintentionally result in perverse results that focus on electrification in only certain heavy-duty segments. Given the difference in carbon emission impacts between the averaging sets, credits generated from lower weight class BEVs should not be allowed to offset heavier weight class vehicle credits deficits. In short, NHTSA should maintain a credit trading policy that ensures manufacturers seek GHG reductions and electrification in all heavy-duty segments.

Conclusion

Tesla believes the changes described herein -- which are amply supported, and indeed compelled, by the record before the agency and NHTSA's statutory authority -- will significantly reduce energy consumption, mitigate climate change, and appropriately recognize the increasing marketplace adoption of BEV technology in both the light-duty and HDPUV sectors.

Accordingly, for the reasons set forth above, NHTSA should, *inter alia*, amend its proposal to adopt a final standard that embodies the more stringent alternatives of PC6LT8 and HDPUV14.

Respectfully submitted,

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CC:

Comment containing CBI submitted under separate cover.

[121] Id. at 56371.