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To Whom It May Concern:

Pursuant to the Department of Transportation, National Highway Traffic Safety Administration (DOT or NHTSA) and Environmental Protection Agency's (EPA) proposed "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks." 83 Fed. Reg. 42817 (Aug. 21, 2018), Tesla submits the following comments. These comments supplement Tesla's comments previously submitted during the Mid-Term Evaluation (MTE[1]) process including the comment periods of October 5, 2017, and November 11, 2016.[2]

Tesla believes the current MY 2017-2025 EPA Greenhouse Gas (GHG) Emissions and NHTSA Corporate Average Fuel Economy (CAFE) light-duty vehicle standards (herein referred to as the LDV Standards) are a bare minimum, can easily be met with only small increases in the efficiency of fossil fuel engines, and should be strengthened.[3] As the EPA's January 2017 "Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation" (January 2017 MTE) properly concluded, a thorough analysis of existing vehicle technologies "remains consistent with the key conclusions reached in the 2012 FRM: there are multiple compliance paths based chiefly on deployment of advanced gasoline

[1] See generally, EPA, Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025.
[2] See, Tesla Comment Letter (Oct. 5, 2017), responding to NHTSA's and EPA's Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards, 82 Fed. Reg. 39551 (Aug. 21, 2017); Tesla also incorporates by reference comments submitted by the National Coalition for Advanced Transportation (NCAT) to this proposal docket.
[3] EPA, NHTSA, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62624 (Oct. 15, 2012).

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engine technologies with minimal needed penetration of strong hybrid or full electric vehicles, projected per vehicle costs are lower than in the 2012 FRM, and the cost of the lower emitting technology is fully paid back by the associated fuel savings."[4] This conclusion remains consistent with recent technological developments and automotive industry trends.

The January 2017 MTE also found "that very low levels of strong hybrids and electric vehicles (both plug-in hybrid electric vehicles (PHEV) and electric vehicles (EV)) will be needed to meet the standards."[5] Since this conclusion was reached, it has become even clearer that the U.S. and world auto markets stand on the verge of significant electrification, and new EV developments make the existing standards look low and uncompetitive compared to the rest of the world.

Stronger standards are necessary to support continued job growth, to save lives, and to ensure that automakers make investments in a cleaner transportation future for America. Nothing in the record supports NHTSA's and EPA's radical proposal to weaken the current LDV Standards. Rather, throughout the proposed rule, the state of EV technology, the societal benefits of EV technology, and the level of consumer acceptance of EV technology are all misrepresented, vastly undervalued, and not supported by the facts. Recent advances in EV technology and booming consumer acceptance actually should compel both agencies to strengthen, not lower, the existing LDV Standards.

I. Tesla Is the First Successful New American Automobile Manufacturer in Over 50 Years

Tesla's mission is to accelerate the world's transition to sustainable energy. Moreover, Tesla agrees with the scientific consensus that the world will not be able to solve the climate change crisis without directly reducing air pollutant emissions—including greenhouse gases—from the transportation and power sectors.

To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance, fully electric vehicles, solar energy products, and advanced battery storage systems. Tesla currently produces and sells three EVs: the Model S sedan, the Model X sport utility vehicle, and the Model 3 sedan. While Tesla started out as what some may regard as a "niche" automotive manufacturer, it has gained extensive experience that is highly relevant to the agencies' rulemaking activities. A little over a year after its first delivery to customers, the Tesla Model 3 is now the best-selling American car and the Tesla Model S is the best-selling vehicle in its class.

As an automobile manufacturer, Tesla is subject to regulation under NHTSA's CAFE program and the EPA's Light-Duty Vehicle GHG Emission Standards. Tesla is also subject to regulation under California's Low-Emission Vehicle III Greenhouse Gas Emission Regulation (CA LEV III GHG Standards),[6] and California's Zero Emission Vehicle (ZEV) Regulation.[7]

Tesla supports strengthening the regulatory stability and stringency embodied in the existing One National Program LDV Standards (including the CA LEV III GHG Standards).[8] The existing LDV

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[4] See, EPA, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (January 2017) at 23-24.
[5] Id. at 7.
[6] See, California Low-Emission Vehicle Regulations (with amendments effective Oct. 16, 2017).
[7] 13 CA CCR § 1962.2
[8] Tesla supported the 2012 final rule. See, 77 Fed. Reg. 62624 62643 (Oct. 15, 2012) ("As previously stated, there was broad support for the proposed standards by auto manufacturers including BMW, Chrysler, Ford, GM, Honda, Hyundai, Kia, Jaguar/Land Rover, Mazda, Mitsubishi, Nissan, *Tesla*, Toyota, Volvo, as well as the Global Automakers.") (emphasis added); See also, 77 Fed Reg. at 62781. ("The vast majority of public

Standards support continued job growth, save lives, and ensure that automakers make investments in a cleaner transportation future for America. Tesla also supports the continuation of California's role as a laboratory for automotive innovation through the exercise of its clear statutory grant of authority under the Clean Air Act.

Since 2012, the implementation of the current One National Program has driven significant new investment in domestic manufacturing of new and innovative vehicles. The standards have created a stable environment for companies like Tesla to invest in the research, development, and production of new domestic automobile technologies and innovations and to demonstrate American technological and manufacturing leadership. As the leading domestic manufacturer of advanced EVs and batteries, Tesla has shown that investment in a new manufacturing ecosystem of supply chain, components, and infrastructure supporting the electrification of the light-duty vehicle sector yields significant downstream economic benefits to the country.

In the U.S., Tesla conducts vehicle manufacturing and assembly operations at its factory in Fremont, CA,[9] and produces electric drive trains and manufacturers advanced battery packs, as well as Tesla's energy storage products, at its Gigafactory 1 in Sparks, NV.[10] It also builds and services highly-automated, high-volume manufacturing machinery at its facility in Brooklyn Park, MN,[11] and operates a tool and die facility in Grand Rapids, MI. Tesla produces solar energy products at its Gigafactory 2 in Buffalo, NY.[12] And Tesla currently operates 77 service centers and 112 stores in the U.S.

Tesla continues to grow and now employs over 45,000 people worldwide with more than 35,000 jobs in the U.S. Tesla also has suppliers and contractors in nearly every state in the nation, providing billions of dollars of investment and tens of thousands of jobs across the country. For example, Tesla is the largest manufacturing employer in California and the only automaker building EVs at scale in the state and, further, the only automaker building any kind of passenger vehicle at scale in California. Tesla employs more than 20,000 workers in California and is on track to produce well over 200,000 zero emission vehicles in 2018. As the recent report "The Economic Contribution of Tesla in California" finds, Tesla also supports over 31,000 additional jobs in the state, and the company's economic impact in California goes far beyond that of its immediate employees and includes infusing over $4 billion into the California economy in 2017 alone.[13]

Tesla's manufacturing provides significant other economic benefits to the country. Its vehicle manufacturing supports a significant number of other businesses and their accompanying workforces. Considering the impact of its supply chain, as well, Tesla has created close to 80,000 direct and indirect jobs. In 2017, Tesla used 402 U.S. suppliers with a total spend of over $1.7B. This continues to grow: to date in 2018, Tesla has used 370 U.S. suppliers with a total spend of over $2.5B.

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comments expressed strong support for the stringency levels proposed in the 2017– 2025 National Program. Stakeholders in support included environmental NGO's, consumer groups, automakers, automotive suppliers, labor unions, veterans groups and national security organizations, and many private citizens. Notably, there was broad support for the proposed standards by auto manufacturers including BMW, Chrysler, Ford, GM, Honda, Hyundai, Kia, Jaguar/Land Rover, Mazda, Mitsubishi, Nissan, *Tesla*, Toyota, Volvo as well as the Alliance of Automobile Manufacturers and the Global Automakers.") (emphasis added).

[9] See, Tesla, Tesla Factory (providing details on Tesla's Fremont, CA manufacturing facility).

[10] See, Tesla, Tesla Gigafactory (providing details on Tesla's Gigafactory in Sparks, NV).

[11] See, Tesla, Accelerating a Sustainable Energy Future (highlighting Tesla's Perbix facility).

[12] See generally, Electrek, Tesla accelerates hiring effort at Gigafactory 2 as more solar roof installations emerge (April 5, 2018).

[13] IHS Markit, The Economic Contribution of Tesla in California (May 2018).

a. Tesla's Investment in New U.S. Charging Infrastructure Continues to Rapidly Expand

The substantial economic value derived from the current regulatory stability created through the existing LDV Standards goes well beyond investment in the American EV manufacturing sector and supply chain. Tesla has outspent the rest of the auto industry combined on EV charging stations and infrastructure to accelerate and support the widespread adoption of its products.

Since 2012, Tesla has invested heavily in siting, building, and operating EV charging infrastructure. In 2013, Tesla had just eight Supercharger Stations in North America. As of September 2018, this global network has grown to include over 1,300 Supercharger Stations with more than 11,000 individual chargers.[14] Indeed, 99% of the U.S. population is within 150 miles of a Tesla Supercharger. The network also includes more than over 20,000 Destination Charging[15] connectors worldwide that replicate the convenience of home charging by providing hotels, resorts, and restaurants with Tesla Wall Connectors.[16] Tesla is committed to continue expanding these networks to provide a convenient and seamless charging experience for our customers.

b. Tesla's Electric Vehicle Manufacturing Has Led to Energy Storage Innovation and Rapid Expansion of Tesla's Energy Storage Business

While Tesla may be best known for its vehicles, Tesla offers industry-leading energy storage systems that are derived from the same lithium-ion battery technology that powers its vehicles. Unlike most energy storage market participants, Tesla provides energy storage systems for every major customer segment – residential customers, commercial and industrial customers, and utilities themselves. Tesla has a broad view of the opportunities for and barriers to energy storage deployment across all major segments and the growth in this business is directly derived from utilizing the advanced battery manufacturing established in Tesla's EV manufacturing.

Tesla has leveraged its technological expertise in batteries, power electronics, and integrated systems to manufacture and sell energy storage products. Using the energy management technologies and manufacturing processes developed for our vehicle powertrain systems, Tesla developed energy storage products for use in homes, commercial facilities and on the utility grid. Advances in battery architecture, thermal management, and power electronics that were originally commercialized in Tesla vehicles, are now being leveraged in our energy storage products. Tesla energy storage systems are used for backup power, grid independence, peak demand reduction, demand response, reducing intermittency of renewable generation, and wholesale electric market services, thus providing a range of important societal benefits.[17]

In late 2016, Tesla began production and deliveries of our latest generation energy storage products, Powerwall 2 and Powerpack 2.[18] Powerwall 2 is a 14 kilowatt hour (kWh) home battery with an integrated inverter.[19] Powerpack is an energy storage system for commercial, industrial and utility applications, comprised of 210 kWh (AC) battery packs and 50 kVa (at 480V) inverters.[20]

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[14] See, Tesla, Charge on the Road (providing extensive information on Tesla's Supercharging network).
[15] Tesla, Tesla Third Quarter 2018 Update at 3.
[16] See, Tesla, Charge Upon Arrival (providing extensive information on Tesla's Destination Charger network).
[17] Tesla, Inc., S.E.C. Form 10-K (Feb. 22, 2018) at 9.
[18] Id. at 1.
[19] See, Tesla, Meet Powerwall, your home battery (providing extensive information on Tesla's Powerwall home energy storage products).
[20] See, Tesla, POWERPACK: Utility and Business Energy Storage (providing extensive information on Tesla's Powerpack grid storage products).

In 2017, Tesla completed installation of the largest battery in the world in South Australia. This battery delivers electricity during peak hours to help maintain the reliable operation of South Australia's electrical infrastructure. According to third-party research, since Tesla deployed our 129 MWh Powerpack project in South Australia, grid maintenance cost declined by 90%. This has been achieved due to the battery's instantaneous response to electricity demand from our energy storage deployment.[21]

In May 2018, Tesla's energy storage business reached the significant milestone of having deployed 1 GWh of energy storage worldwide since the inception of Tesla's energy storage business. Having reached that milestone after less than 5 years, Tesla's goal is to triple energy storage deployments in 2018 compared to last year.

II. Maintaining and Increasing the Stringency of Federal and State Fuel Economy and Greenhouse Gas Vehicle Standards Is Imperative to Protect Public Health and Welfare

Tesla's mission is rooted in manufacturing American advanced zero emission vehicles that contribute to solving the climate crisis. The Intergovernmental Panel on Climate Change's (IPCC) recent peer reviewed science findings[22] have heightened the imperative to reduce greenhouse gas (GHG) emissions and "dramatically reduce and electrify energy demand for transportation"[23] and include "the expansion of electric vehicles."[24] These findings only add to the overwhelming scientific consensus that the U.S. and other countries need to reduce GHG emissions rapidly.[25] Nothing in the NPRM refutes this peer-reviewed science or the EPA's existing findings that the current and projected GHG emissions threaten the public health and welfare of current and future generations and that new, non-ZEV motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.[26]

In contrast to these warnings, the NPRM would roll back the existing LDV Standards substantially contributing to increased levels of global warming pollution that the EPA itself says harms U.S. citizens.[27]

Fatalistically, the NPRM's environmental analysis finds that global temperature will rise by nearly 3.5 degrees Celsius above the average by 2100 and that:

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[21] Id.

[22] See, IPCC, Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. (Oct. 6, 2018); See generally, Washington Post, The Energy 202: The clock is ticking to stop catastrophic global warming, top climate scientists say (October 8, 2018); Washington Post, The world has just over a decade to get climate change under control, U.N. scientists say (Oct. 7, 2018).

[23] IPCC Report at Chapter 2, 2-27.

[24] IPCC Report at Chapter 4, 4-6; See also, Id. at 4-30.

[25] See e.g., U.S. Global Change Research Program, Fourth National Climate Assessment (2017).

[26] EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009).

[27] See e.g., Rhodium Group, Sizing Up a Potential Fuel Economy Standards Freeze (May 3, 2018)(finding that freezing the CAFÉ and GHG at MY 2020 levels will By 2025, the increase in annual emissions will range from 16 million to 37 million metric tons in 2025 and balloon to 32 million to 114 million metric tons by 2035); Union of Concerned Scientists, New EPA Administrator, Same Bad Idea—Car Standard Rollbacks Would be Awful (July 20, 2018) (finding that rolling back the existing standards will result in an additional 2.2 billion metric tons of global warming emissions by 2040).

> The emissions reductions necessary to keep global emissions within this carbon budget could not be achieved solely with drastic reductions in emissions from the U.S. passenger car and light truck vehicle fleet but would also require drastic reductions in all U.S. sectors and from the rest of the developed and developing world. In addition, achieving GHG reductions from the passenger car and light truck vehicle fleet to the same degree that emissions reductions will be needed globally to avoid using all of the carbon budget would require substantial increases in technology innovation and adoption compared to today's levels and would require the economy and the vehicle fleet to substantially move away from the use of fossil fuels, which is not currently technologically feasible or economically practicable.[28]

Subscribing to such a conclusion is a dereliction of the EPA's statutory duty to protect the public health and welfare of its citizens, errantly dismisses advances in vehicle technology, and employs reasoning that has been directly rejected by the U.S. Supreme Court.

As the Court explained in *Massachusetts v. EPA*, 549 U.S. 497 (2007):

> But EPA overstates its case. Its argument rests on the erroneous assumption that a small incremental step, because it is incremental, can never be attacked in a federal judicial forum. Yet accepting that premise would doom most challenges to regulatory action. Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop. . . .
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> And reducing domestic automobile emissions is hardly a tentative step. Even leaving aside the other greenhouse gases, the United States transportation sector emits an enormous quantity of carbon dioxide into the atmosphere . . . more than 6% of worldwide carbon dioxide emissions . . . To put this in perspective: Considering just emissions from the transportation sector, which represent less than one-third of this country's total carbon dioxide emissions, the United States would still rank as the third-largest emitter of carbon dioxide in the world, outpaced only by the European Union and China. Judged by any standard, U. S. motor-vehicle emissions make a meaningful contribution to greenhouse gas concentrations and hence, according to petitioners, to global warming.[29]

EPA may not simply ignore its statutory obligation and this binding precedent requiring that these impacts be taken into account.

a. ***California's Compelling and Extraordinary Conditions that Support Its Clean Air Act Waiver and the Need for Its LEV III GHG Standards***

In the NPRM, NHTSA and EPA propose to withdraw California's Clean Air Act waiver and find that California does not need its CA LEV III GHG Standards to meet compelling and extraordinary conditions caused by climate change. This assertion ignores existing conditions in CA, the state of current climate science, and past EPA findings upheld in federal court.[30]

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[28] NHTSA, EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021–2026 Passenger Cars and Light Trucks, Draft Environmental Impacts Statement (July 2018) at 5-30; See also, 83 Fed. Reg. 42817, 43125-16.

[29] Massachusetts v. EPA, 549 U.S. 497 (2007) at 21-22.

[30] See, Coalition for Responsible Regulation v. EPA, 684 F. 3d 102 (D.C. Cir. 2012).

California continues to take action to reduce dramatically air pollutant emissions from transportation – a sector that accounts for 50 percent of the state's GHG emissions and 80 percent of smog-forming pollutants.[31] Every Tesla is assembled in California and these EVs help to reduce the emission of harmful air pollutants across communities throughout California and directly contribute to California's goal of 5 million ZEVs on the road by 2030. These vehicles also significantly aid in reducing GHG emissions consistent with the state's long-term goals.[32] Maintaining the stability and stringency of the CA LEV III GHG Standards is a critical piece of meeting the state's goals.

Similarly, in 2012, EPA recognized that maintaining the CA LEV III GHG Standards would reduce hundreds of cases of premature mortality and thousands of lost workdays resulting from air pollution.[33] As EPA has previously noted:

> EPA has consistently determined that the phrase "compelling and extraordinary conditions" refers to: * * * Certain general circumstances, unique to California, primarily responsible for causing its air pollution [including] * * *geographical and climate factors [as well as] * * * the presence and growth of California's vehicle population, whose emissions were thought to be responsible for ninety percent of the air pollution problem in certain parts of California. CARB also submits that the 2012 ZEV and LEV amendments (the ACC program) meet the same compelling and extraordinary conditions justifying previous waivers (e.g., the South Coast and San Joaquin Air basins continue to experience some of the worst air quality in the nation and that California has an ongoing need for dramatic emission reductions generally and from passenger cars specifically).[34]

Moreover, since the EPA's granting of California's last waiver in 2013, the peer-reviewed science supporting the compelling need for California to maintain its LEV III GHG standards has become dramatically clearer and dire. For example, in the 2014 National Climate Assessment found, *inter alia*:

> Climate change is projected to harm human health by increasing ground-level ozone and/or particulate matter air pollution in some locations. . . . Increases in global temperatures could cause associated increases in premature deaths related to worsened ozone and particle pollution.[35]

Other post-2012 studies also indicate that, absent mitigation measures, climate change can roll back progress in curbing air pollution, with a substantial cost to public health. California is among the states projected to be most affected by worsening air quality due to climate change.[36]

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[31] See, Office of Gov. Edmund G. Brown, Jr., Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments (Jan. 26, 2018).
[32] See, Id.
[33] EPA estimated that the final rule would reduce between 110 and 280 cases of PM2.5-related premature mortality annually in 2030. 77 Fed Reg. 62624, 62933 (Oct. 15, 2012) and estimated benefits from PM2.5 reduction in 2030 include reducing annual lost works day by 14,000, and 3,500 incidents of asthma exacerbation in children. 77 Fed Reg. 62624, 62934 (Oct. 15, 2012).
[34] 78 Fed. Reg. at 2128-29.
[35] USGCRP, Chapter 11 "Human Health" *Climate Change Impacts in the United States: The Third National Climate Assessment* at 222 (2014).
[36] See, Pfister, G.G., et al. Projections of future summertime ozone over the U.S., *J. Geophys. Res. Atmos.*, 119 (2014). See, e.g., Health Effects Institute, Study examines impacts of emissions regulations in the Atlanta area (April 2018); American Lung Association, Clean Air Future: Health and Climate Benefits of Zero Emission Vehicles (October 27, 2016); Pfister, G.G., et al. Projections of future summertime ozone over the U.S., *J.*

Likewise, EPA recognized the significant and unique climate change impacts being experienced in California in its last waiver evaluation stating:

> Record-setting fires, deadly heat waves, destructive storm surges, loss of winter snowpack—California has experienced all of these in the decade and will experience more in the coming decades. California's climate— much of what makes the state so unique and prosperous—is already changing, and those changes will only accelerate and intensify in the future. Extreme weather will be increasingly common as a result of climate change. In California, extreme events such as floods, heat waves, droughts and severe storms will increase in frequency and intensity. Many of these extreme events have the potential to dramatically affect human health and well-being, critical infrastructure and natural systems.[37]

As California's recent, peer-reviewed Fourth Climate Change Assessment finds, these state-specific impacts have continued and even intensified since the last waiver evaluation. For example, heat-related illnesses and deaths will worsen drastically throughout the state, and more severe wildfires, more frequent and longer droughts, rising sea levels, increased flooding, and more extreme weather events will all uniquely and increasingly impact the state.[38] Nonetheless, the analysis in the NPRM has not refuted any of these findings.

III. The Proposed Reduction in the Existing LDV Standards Will Harm American Innovation, Manufacturing, and Competitiveness

As the only U.S.-based manufacturer of EVs that exports its vehicles abroad, Tesla believes maintaining the stringency of the current performance-based LDV Standards is essential to ensuring U.S. manufacturers' ability to compete abroad and build greater export markets. The current LDV Standards have created stability and an investment environment that has contributed to Tesla being able to invest continually in technology and to expand manufacturing for both the U.S. and foreign EV markets.

The projections for global adoption of EV technology are significant. For example, the International Energy Agency forecasts 125 million EVs by 2030[39] and Bloomberg predicts a global fleet of 560 million EVs in 2040.[40] NHTSA and EPA should be ensuring that any proposed changes to the LDV

Geophys. Res. Atmos., 119 (2014); Driscoll, C.T, Buonocore, J., Reid, S., Fakhraei, H, and Lambert, K.F. Co-benefits of Carbon Standards Part 1: Air Pollution Changes under Different 111d Options for Existing Power Plants. Syracuse University, Syracuse, NY and Harvard University, Cambridge, MA. A report of the Science Policy Exchange. 34 pp (2014); Akhtar, F.H.; Pinder, R.W.; Loughlin, D.H.; Henze, D.K. GLIMPSE: A rapid decision framework for energy and environmental policy; *Environ. Sci. Technol.* (2013); West, J.J., et al. Co-benefits of mitigating global greenhouse gas emissions for future air quality and human health. *Nature Climate Change* 3, 885-889 (Sept. 22, 2013). *See also* Thurston, George D. Mitigation Policy Health Co-Benefits. *Nature Climate Change* 3 863-64 (Oct 2013) (describing significance of West et al. article); Kleeman, Mike, Zappata, et al. PM2.5 co-benefits of climate change legislation part 1: California's AB 32 *Climatic Change* 117, 377-397 (2013).

[37] 78 Fed. Reg. at 2129.

[38] See CA Department of Natural Resources, California's Fourth Climate Change Assessment (Aug 27, 2018); LA Times, Climate scientists see alarming new threat to California (Dec. 5, 2017). See also, Axios, 1 big thing: California's transportation challenge (Aug 31, 2018)(stating California's transportation emissions have been rising in recent years — even as the state's overall CO2 output has dropped over the last decade — and ticked up another roughly 2% from 2015–2016); Bloomberg, California Car Emissions Rise as Trump's Cuts to Standards Loom (Aug. 30, 2018).

[39] CNBC, Electric vehicles will grow from 3 million to 125 million by 2030, International Energy Agency forecasts (May 30, 2018).

[40] Axios, The race for the next billion cars (Sept 27, 2018).

Standards foster more stability and innovation so domestic manufacturers can continue to lead in the burgeoning worldwide EV marketplace. However, the agencies' proposal would reverse this market stability and create an alternative that is inconsistent with the Administration's own manufacturing policy goals of fostering U.S. global leadership in vehicle-related intellectual property, EV technology, and advanced lithium ion battery development.[41]

While the Administration's Section 301 Trade Investigation Report identifies the need for policies to confront unfair international competition in EVs and lithium ion batteries as embodied in the "Made in China 2025 Roadmap," NHTSA's and EPA's proposal to decrease the LDV Standards will result in foreign manufacturers gaining a global advantage in these sectors.[42] China is already leading in EV sales[43] and this continues to be driven by strong EV and fuel economy standards (48 mpg by 2020) that surpass those of the existing U.S. standards.[44] China, like other nations, is embracing strong standards to drive a domestic EV manufacturing ramp up toward 70 percent of EV sales by 2020 being domestically manufactured and 80 percent by 2025. Similarly, in the E.U., emissions standards – equivalent to almost 57 mpg by 2021 – and in South Korea – almost 57 mpg by 2020 - will further incentivize foreign manufacturers to develop new EV offerings and threaten to outpace the U.S. technological lead in this area.[45]

NHTSA's and EPA's proposal to roll back the existing LDV Standards simply creates a competitive advantage for foreign EV manufacturers. In contrast, maintaining and improving the existing LDV Standards would reward U.S. commerce in EV technology and fight against increased pressure on domestic companies to transfer their EV and battery technologies abroad as a means of entering more favorable overseas markets. Stronger domestic LDV Standards will also facilitate maintenance of U.S. manufacturing assets and intellectual property in this country. Simply put, the U.S. should be leading the world in creating a stable and forward-leaning standards environment to catalyze the advancement of domestic EV manufacturing but NHTSA's and EPA's proposal will do the opposite.

IV. Tesla Has Proven Consumer Acceptance and Preference for Electric Vehicles, Thereby Demonstrating the Error in the Proposed Rulemaking's Assumptions

In the April 2018 Final MTE, EPA made no mention of comments submitted by Tesla and, among other unsupported conclusions, the Administrator found that "it would not be practicable to meet the MY 2022–2025 emission standards without significant electrification and other advanced vehicle technologies that lack a requisite level of consumer acceptance."[46] NHTSA and EPA continue this biased view toward the current state of EV technology by erroneously suggesting that consumers are unwilling to pay for the technology and that EVs have negative net societal benefits compared to conventional vehicles.[47] The agencies reach this result by manipulating their selection of data to avoid including information about consumer willingness to pay for Tesla vehicles -- the most prominent, successful, and widely deployed EVs. As the NPRM states, "[T]he willingness-to-pay

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[41] USTR, Findings Of The Investigation Into China's Acts, Policies, And Practices Related To Technology Transfer, Intellectual Property, And Innovation Under Section 301 Of The Trade Act Of 1974 at 29-32, 139-40.
[42] USTR, Findings Of The Investigation Into China's Acts, Policies, And Practices Related To Technology Transfer, Intellectual Property, And Innovation Under Section 301 Of The Trade Act Of 1974 ("301 Investigation Report)(March 22, 2018) at 30-33 (New Energy Vehicles), at 142 (lithium ion batteries).
[43] See, EV Volumes.Com.
[44] ICCT, 2017 Global Update Light-Duty Vehicle Greenhouse Gas and Fuel Economy Standards (June 23, 2017) at 11.
[45] NY Times, How U.S. Fuel Economy Standards Compare with the Rest of the World's (April 3, 2018); AP, Climate goals mean Europe will overtake US in electric cars (Oct 2, 2018).
[46] 83 Fed. Reg. at 16081.
[47] See, 83 Fed. Reg. 43082-83.

analysis does not consider electric vehicles with no direct ICE counterpart. For example, today's evaluation does not consider Tesla because the Tesla brand has no ICE equivalent, and because the free-market prices for used Tesla vehicles have been difficult (if not impossible) to obtain, primarily due to factory guaranteed resale values."[48]

As described herein, Tesla's performance in the marketplace has shown that NHTSA's and EPA's conclusions are false and that consumers want EVs and increasingly choose them over vehicles in the same vehicle class. And while even the January 2017 MTE determined that "the standards are feasible at reasonable cost, without need for extensive electrification," Tesla has demonstrated that the pace of vehicle electrification and consumer acceptance far surpass even those found in any of NHTSA's and EPA's analyses.[49] Accordingly, NHTSA and EPA should be increasing the stringency of the LDV Standards, not weakening them.

a. Tesla Has Outperformed All Past EPA/NHTSA Sales Predictions Demonstrating the Current Standards Should Not Be Weakened.

In 2012, EPA and NHTSA stated: "At this time we do not estimate whether the number of people who will choose to purchase EVs at private-market prices will be more or less than the number that auto makers are expected to produce to comply with the standards."[50] It is now 2018 and the definitive answer is more, indeed much more.

Tesla's growth during the period of 2012 through 2018 under the current LDV Standards shows that past projections of consumer acceptance of EV technology have been repeatedly surpassed. In 2012, the LDV final rule projected Tesla annual sales for MY 2025 at 31,974 vehicles.[51] Subsequently, in the NHTSA, EPA, and CARB 2016 Joint Technical Assessment Report (2016 TAR), Tesla was projected to have a sales volume of 86,636 in MY 2021 and 103,502 in MY 2025.[52]

In contrast to these projections, in 2017, Tesla sales volume equaled the MY 2025 projections by selling over 103,000 cars. [53] At the end of Q3 2018, there were almost 450,000 Tesla vehicle owners around the world.[54] In Q3 2018 alone, Tesla delivered more than 83,000 vehicles, including almost 56,000 Tesla Model 3s (See below, *Figure 1*).[55] As recently reported:

> To put the Model 3's success in perspective, Tesla sold more Model 3s than GM sold Cadillacs or Buicks -- of any model. The Model 3 also outsold all Honda Acuras and Ford's Lincolns and Tesla sold more Model 3s than Lexus, BMW, Mercedes and Audi sold cars . . .

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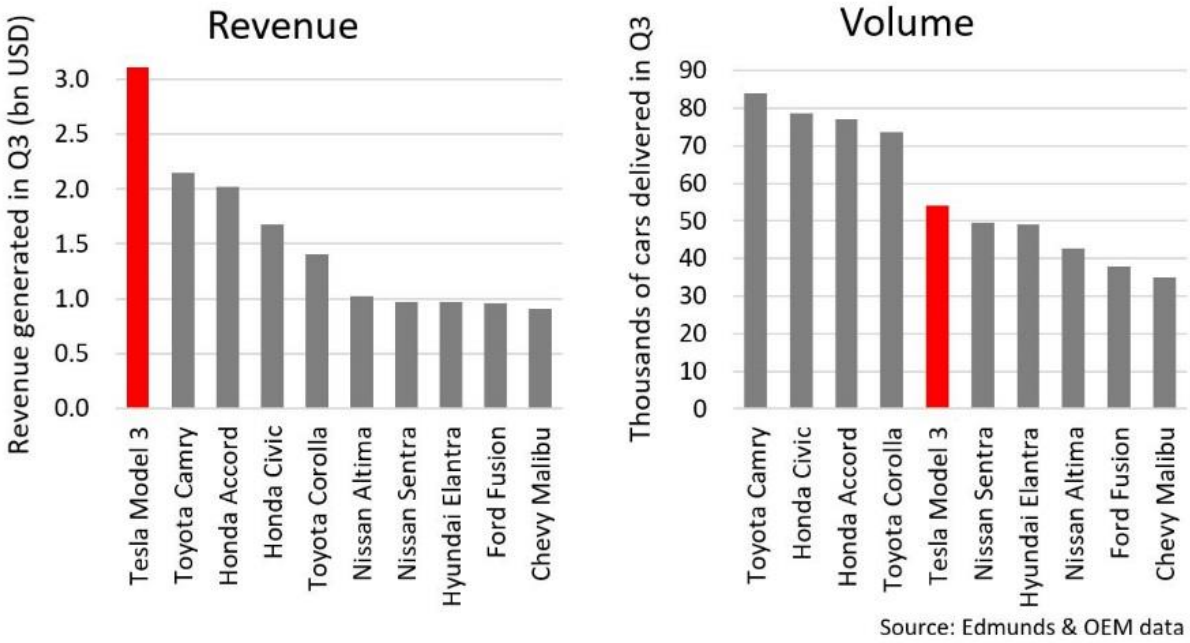
[48] 83 Fed. Reg. at 43085.
[49] See, January 2017 MTE at 3.
[50] 77 Fed. Reg. at 62918.
[51] EPA, NHTSA, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62624, 62679 (Oct. 15, 2012); See also, EPA, NHTSA, Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25324, 25675 (May 7, 2010) (noting that at that time Tesla had less than 1,000 employees and made less than 1,000 vehicles per year).
[52] EPA, NHTSA, CARB, Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025 (July 2016) at 4-38 (MY 2021 projections); at 4-20 (MY 2025 projections).
[53] Tesla, Inc., S.E.C. Form 10-K (Feb. 22, 2018) at 39.
[54] Tesla, Tesla Third Quarter 2018 Update at 3.
[55] Tesla, Tesla Q3 2018 Vehicle Production and Deliveries (Oct. 2, 2018).

> The Model 3 surpassed those established brands even though Tesla doesn't advertise and, in most cases, Tesla has far fewer stores than its competitors' dealership network.[56]

Indeed, Tesla has had 25,913% sales growth over the past 6 years.[57]

Figure 1: **U.S. Passenger Car Sales Q3 2018[58]**



Furthermore, in real-world contrast to the NPRM's modeling results, the existing EV market sales already surpass NHTSA's and EPA's predicted fleet mix. For each alternative proposal, including the no action alternative, the agencies project a 1% fleet technology penetration level for EV passenger cars through 2029.[59] While flawed, modeling results such as these reveal that even maintaining the current stringency of standards under-projects the pace and level of electrification presently occurring.[60] In September 2018, Tesla's U.S. market share alone was over 2% and increasing rapidly.[61] This outperformance (and the compliance flexibility EV sales provide to existing manufacturers) shows that the stringency of existing LDV Standards can be met, at the least, and more appropriately, supports increasing stringency in the standards.

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[56] CNN, Tesla's secret success story: Model 3 is best-selling luxury car in America (Oct. 9, 2018).
[57] See, CleanTechnica, Tesla Crushes Porsche & Jaguar Worldwide (Oct. 12, 2018).
[58] Tesla, Tesla Third Quarter 2018 Update at 1.
[59] See 83 Fed. Reg. at 43267, Table VII-6; See also, 83 Fed. Reg. at 43218-43221, Tables V-1 thru V-4.
[60] See, CleanTechnica, Please Stop Saying "EVs Are Only 1% Of Auto Sales In The US (July 1, 2018) (In the US, EV sales have been hovering in the 1% neighborhood for the last two years, but EV sales in April 2018 were 1.74% of total light vehicle sales and could end up close to 2% by the end of 2018, primarily because of deliveries of the Tesla Model 3. California's EV market share reached a record 7.77% in April and is predicted to reach around 9.5% in December and perhaps 7.5% for the entire year.)
[61] See Statista, Tesla's estimated U.S. market share from January 2018 to September 2018

In addition to Tesla's market performance, expert and multiple non-biased analyses finds that NHTSA's and EPA's predictions are inaccurate and that electrification of vehicle fleets will occur rapidly. For example, a recent study conducted by Wood Mackenzie and GTM Research found that by 2035 plug-ins could account for 21% of the global car fleet.[62] Bloomberg New Energy Finance forecasts U.S. 8.5% of sales to be EVs in 2025, and even bearish forecasts from Wards Intelligence finds 2025 EVs sales at 3%.[63] Numerous other studies, including one finding U.S. EV sales reaching 65-75% in 2050,[64] show much more rapid adoption than what NHTSA and EPA predict will occur.[65]

b. Tesla Has Demonstrated Consumers Prefer EV Technology Over Conventional Technology

The NPRM also consistently underestimates consumer acceptance and willingness to pay for EV technology. Consistent with this, NHTSA and EPA assert: "While vehicles can be built with advanced fuel economy improving technology, this does not mean that consumers will buy the new vehicles that might be required to include such technology."[66] And, similarly, in the April 2018 Final MTE EPA claims:

> Since a peak in 2013, electrified light-vehicle (LV) sales have decreased both as a total and as a percentage of all light-vehicle sales. This calls into question EPA assumptions for the 2012 rulemaking and the January 2017 Determination that sales of electrified LVs will be sufficient to support compliance with the MY 2022–2025 standards.[67]

Further, the EPA claims that "EV sales have decreased and when looking at very small numbers, percentage growth may be misleading."[68]

Basing a need to weaken the existing LDV Standards on such assertions is erroneous. The agencies presumably arrived at these conclusions by conflating "electrified sales" to include hybrids and other vehicles, and by ignoring the exponential growth in EV sales; they also ignore Tesla's performance in the overall vehicle marketplace. Tesla's market performance demonstrates that such assertions are misplaced and that consumers increasingly prefer EV technology over the existing conventional technologies. As Bloomberg recently stated about Tesla's Model 3, "First it was America's best-selling electric car. Then it became the best-selling luxury car. Now, against the odds, Tesla Inc.'s Model 3 is becoming one of the best-selling sedans in America, period."[69] Indeed, Tesla is now the top selling luxury vehicle brand in the USA.[70] There is simply no basis for the view of the agencies

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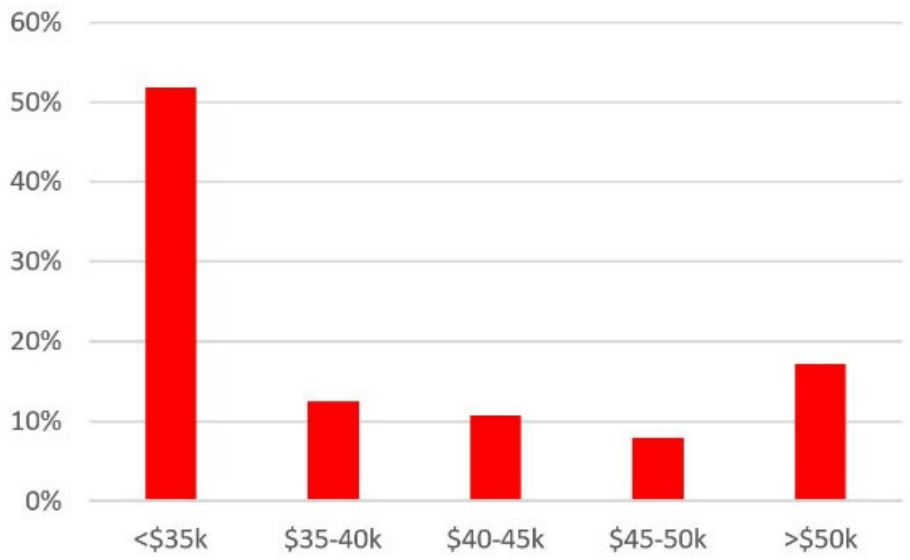
[62] InsideEVs, Study: EVs Could Account For 21% of Global Fleet by 2035 (Dec. 28, 2017).
[63] Axios Generate, The past and future of EV and hybrid sales (April 17, 2018).
[64] See, Forbes, The Future of Electric Vehicles in the U.S., Part 1: 65%-75% New Light-Duty Vehicle Sales By 2050 (Sept 14, 2017) (describing the modeling results of an Energy Innovation analysis).
[65] See e.g., Bloomberg, McKerracher: BP's Energy Outlook and the Rising Consensus on EV Adoption (Feb 23, 2018); Vox, Electric vehicles are gaining momentum, despite Trump (June 28, 2018); Bloomberg, McKerracher: BP's Energy Outlook and the Rising Consensus on EV Adoption (Feb 23, 2018); Morgan Stanley is becoming more bullish with their EV-related estimates and now the research group concludes that EVs will reach price parity with ICE cars by 2025 (Sept 19, 2017).
[66] 83 Fed. Reg. at 43226.
[67] 83 Fed. Reg. at 16079.
[68] 83 Fed. Reg. at 16083.
[69] Bloomberg, Tesla's Model 3 Is Becoming One of America's Best-Selling Sedans (Oct. 3, 2018). See also, CleanTechnica, Tesla Model 3 = 4th Best Selling Car in USA* (Maybe) (Oct. 3, 2018).
[70] CleanTechnica, Yep, Tesla Is Gobbling USA Luxury Car Market — 8 Charts & Graphs (Oct 3, 2018).

that, "There is a trade-off between fuel economy and other attributes that consumers value, such as vehicle performance . . . ."[71]

Increasingly, marketplace data show that NHTSA's and EPA's projections are wrong, outdated, and do not support any lowering of the existing LDV Standards. In July 2018, the Tesla Model 3 not only had the #1 market share position in its segment in the U.S., it outsold all other mid-sized premium sedans combined, accounting for 52% of the segment overall.[72] Indeed, the Tesla Model 3 is now the top selling American car in the country.[73] It is also the top selling car in terms of revenue.[74]

While NHTSA and EPA asserts that low priced fossil fuel will dampen consumer purchasing of electrification technologies, Tesla internal sales data reveals the opposite - consumers are willing to pay more for advanced vehicles and the advanced performance of EV technology regardless of fuel price fluctuations.[75] The top 10 vehicles traded in for a Tesla Model 3 include the Toyota Prius (#1), Honda Accord (#4), Honda Civic (#5), and the Toyota Camry (#7) and the median value of all trade-ins is $8,600. As shown in *Figure 2*, this data reveals that U.S. consumers are increasingly willing to trade in some of the country's moderately-priced, best-selling sedan types for the increased performance of EVs and directly contradicts projections used to support the NPRM.[76]

Figure 2: **Original Purchase Price of Tesla Model 3 Trade-Ins[77]**



[71] 83 Fed. Reg. at 43089.
[72] See, CNN, Tesla's secret success story: Model 3 is best-selling luxury car in America (Oct. 4, 2018).
[73] Inverse, Elon Musk's Tesla Model 3 Sales Stats Show It's Crushing the Competition (Oct. 9, 2018); CleanTechnica, Tesla Model 3 Is #1 Top Selling American Car In USA (Oct. 8, 2018); See also, Bloomberg, Tesla's Model 3 Is Becoming One of America's Best-Selling Sedans (Oct. 3, 2018).
[74] CleanTechnica, Tesla Model 3 = #1 Best Selling Car In The US (In Revenue) (Sept. 9, 2018).
[75] 83 Fed. Reg. at 43222 (asserting "even while some consumers may be willing to pay between $2,000 and $3,000 more for vehicles with electrified technologies, that incremental willingness-to-pay falls well short of the additional costs projected for HEVs, PHEVs, and EVs. This trend may well extend beyond electrification technologies to other technologies.").
[76] See 83 Fed. Reg. at 43084, Table II-37 (suggesting a consumer's willingness to pay just under a $3,000 premium for electrification technology).
[77] Tesla, Tesla Third Quarter 2018 Update at 2.

c. Consumers Want the Superior Performance and Other Benefits of EVs

In the NPRM, NHTSA and EPA suggest that it is unlikely that consumer preferences are going to change dramatically in the foreseeable future and that manufacturers will not be able to improve EV sales "unless consumer preferences change or fuel prices rise significantly, either of which seem unlikely."[78] The agencies premise these conclusions on the basis that many existing technologies can be used to improve other vehicle attributes, such as ''zero to 60'' performance, towing, and hauling, either instead of or in addition to improving fuel economy and reducing CO2 emissions.[79] NHTSA and EPA continue by indicating that "real world" decisions result in manufacturers employing fewer than the full amount fuel-savings/emissions reducing benefits.[80] Such conclusions are again contradicted by Tesla's sales.

Not only do Tesla vehicles provide significant efficiency gains compared to conventional vehicles, Tesla manufacturers vehicles that do not sacrifice performance, and that allow consumers to accrue other significant societal benefits. Indeed, consumers and automotive analysts have repeatedly lauded Tesla vehicles for their superior performance. Tesla manufactures zero emission vehicles that consumers purchase for outstanding vehicle performance and all of its vehicles – Model 3[81], Model S[82], and Model X[83] – have repeatedly earned outstanding performance reviews. These independent reviews demonstrate the intense consumer interest in deploying the best high-performance emissions reducing technologies.[84]

The intense consumer interest also manifests itself in recent consumer surveys that find that "the number of Americans interested in an electric vehicle approaches the number planning to purchase a pickup truck,"[85] and interest in EVs has rapidly increased to the point that "20 percent or 50 million Americans will likely go electric for their next vehicle purchase."[86] Indeed, the U.S. government itself recognizes a number of other consumer benefits from EV technology including that "plug-in electric vehicles can help increase energy security, improve fuel economy, lower fuel costs, and reduce emissions."[87]

d. NHTSA's and EPA's Assertion of Net Negative Consumer Welfare Benefits of EVs Is Incorrect

In addressing the costs and benefits of different vehicle technologies in the NPRM, NHTSA and EPA list a number of topics assessed in its modeling.[88] Contrary to the agencies' overall net benefits

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[78] 83 Fed. Reg. at 43127.
[79] 83 Fed. Reg. at 42991.
[80] Id.
[81] See e.g., Wall Street Journal, First Test Drive of the Tesla Model 3 Performance: A Thrilling, Modern Marvel (Oct. 4, 2018); Car & Driver, The Tesla Model 3 Performance Skips Ludicrous Acceleration for Ridiculous Cornering (Sept. 2018); Tech Crunch, The Tesla Model 3 is a love letter to the road (March 2018); Business Insider, I drove a `$57,500 Tesla Model 3 for a week to see if it's practical for everyday driving — here's the verdict (Oct 4, 2018).
[82] See e.g., The Verge, Tesla Model S P100D Review: The Ultimate Status Symbol of California Cool (Sept. 8. 2017); GQ, I Drove a Tesla on Autopilot and Now I'm Ready to Drive to Space (May 18, 2018).
[83] See e.g., Men's Health, Tesla's Model X Is Proof Electric Vehicles Are Worth the Growing Pains (April 16, 2018); Road & Track, Tesla Model X P100D: The Nor'easter Test (Mar. 20, 2018).
[84] See, Consumer Reports, Car Brands Ranked by Owner Satisfaction (Dec. 21, 2017) (Car owners ranking Tesla as the top brand satisfying consumers).
[85] AAA, Consumer Appetite for Electric Vehicles Rivals Pickups (April 18, 2017);
[86] AAA, 1-in-5 U.S. Drivers Want an Electric Vehicle (May 8, 2018).
[87] U.S. Department of Energy, Electric Vehicle Benefits and Considerations
[88] 83 Fed. Reg. at 43189, Table II-92.

conclusion, in almost every category listed, EVs provide greater benefits and reduced costs compared to other types of vehicles.[89] However, the mechanism indicated for assessing these benefits often skews the benefits away from EV technology. For example, the maintenance repair category utilizes new vehicle production volume as the mechanism for assessing the benefit.[90] In focusing on a volume metric, the comparative large amount of conventional vehicles means repair costs related to conventional fuel economy technologies swamps the accumulation of the significant maintenance cost benefits of EVs. Inevitably, this results in a downplaying of the combined efficiency and maintenance cost benefits associated with a fleet transition toward EVs.

As a result, NHTSA and EPA suggest maintaining stringency in the LDV Standards leads to increased costs for the consumer in vehicle maintenance.[91] This ignores the consumer benefits of electrification. As the U.S. Department of Energy (DOE) recognizes, consumers benefit from reduced maintenance are realized when purchasing an EV and describes them as follows:[92]

> EVs typically require less maintenance than conventional vehicles because:
> - The battery, motor, and associated electronics require little to no regular maintenance
> - There are fewer fluids to change
> - Brake wear is significantly reduced due to regenerative braking
> - There are far fewer moving parts relative to a conventional gasoline engine

Tesla owners experience significant benefits – well over 50% – from reductions in vehicle maintenance costs.[93] And across all models Tesla repeatedly ranks number one in vehicle owner satisfaction.[94]

NHTSA and EPA also suggest that consumers are unwilling to purchase EVs because of consumer welfare losses and other sacrifices, such as reduced cargo space or driving ranges.[95] Such assertions are fundamentally flawed. Purchasers of Tesla vehicles suffer no such welfare losses. Contrary to these assertions, consumers are increasingly choosing EVs because of the consumer welfare gains embodied in a Tesla vehicle. For example, a Tesla vehicle has expanded cargo space. The absence of an internal combustion engine in a Tesla allows for a "frunk" – additional cargo space in the front of the vehicle – that provides more space than a comparable vehicle. As a result, the cubic foot cargo space of a Tesla Model 3 sedan compares favorably to a SUV.[96]

Similarly, the purported net negative social benefit of concerns over EV range is erroneous and misses key considerations. First, Tesla manufactures long-range battery EVs with ranges comparable

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[89] See e.g., U.S. Department of Energy, FOTW #1033, Washington State Has the Greatest Fuel Cost Savings for an Electric Vehicle Versus a Gasoline Vehicle (June 11, 2018) (Find the average fuel cost savings for EVs compared to an ICE vehicle in all states was 60% in each of the states except for Hawaii).

[90] Id.

[91] See 83 Fed. Reg. at 43229.

[92] U.S. Department of Energy, Maintenance and Safety of Hybrid and Plug-In Electric Vehicles.

[93] For example, internal Tesla data finds a median, cumulative 5-year maintenance cost of a Model S at $4648. In comparison, Edmunds projects a 2017 Mercedes S Class as having a 5-year maintenance cost of $12,847. This puts the Tesla Model S maintenance cost at a little over 36% of that of a comparable car in the same vehicle class.

[94] See e.g., Consumer Reports, Car Brands Ranked by Owner Satisfaction (Dec. 21, 2017)(Survey rated Tesla as the #1 car brand for "Owner Satisfaction" for the third year in a row); See also, LA Times, Tesla is tops in buyer satisfaction Consumer Report says (Dec. 21, 2018); Chicago Tribune, Tesla tops Consumer Reports' satisfaction survey (Jan. 2, 2018).

[95] See 83 Fed. Reg. at 43083.

[96] See e.g., Business Insider, The Tesla Model 3 Has One Feature that Gives It an Edge over Other Sedans (April 16, 2018).

to that of internal combustion vehicles, and, in contrast to needing to travel to service stations for refueling, over 80% of the time consumers benefit from the convenience of charging from their own home.[97] Second, advances in EV technology have resulted in consumer concerns over EV to wane.[98] Third, DOE finds significant consumer benefits from EVs stating "on average, it costs about half as much to drive an electric vehicle."[99]

e. NHTSA and EPA Findings on Willingness to Pay for EV Technology is Based on Skewed, Incomplete, and Incorrect Data

Finally, when looking at consumer willingness to pay for EV technologies, the NPRM fails to look at recent consumer surveys and draws conclusions based on incomplete and flawed data. There have been a number of consumer surveys and market analyses showing that consumers want better vehicle fuel-efficiency and reduced GHG emissions, and will move toward EVs. A recent survey found car buyers are willing to pay extra for better fuel economy, even if the initial cost exceeds whatever savings they get at the gas pump.[100] Another found that among vehicle characteristics consumers were least satisfied with the fuel economy of their car and fuel economy and emission reduction technologies were not being deployed fast enough.[101] Another found that 30 million Americans may purchase an EV as their next car.[102]

In the NPRM, NHTSA's and EPA's analysis of consumers' willingness to pay for EV technology is based on skewed and flawed data. The agencies determine, for example, that consumers will only pay between $2000-3000 more for EV technology; but their analysis mistakenly relies on EV used car sales data that excludes data from Tesla.[103] Given Tesla's large EV market share – selling almost 50% of all plug in EV sales in the U.S. – excluding Tesla data from such analyses produces an inaccurate accounting of true consumer willingness to pay. Tesla used car data reveals that consumers are willing to pay more for a used EV.[104] For example, a used 2016 Tesla Model S 75D has a median sales price of $60,300 versus a competing used Audi A8 with an average price of $53,500.[105] Similarly, a 2016 Tesla Model X75D has a median used sale price of $73,350 while a comparable used 2016 BMW X5 has a high end list price of just under $46,000.[106]

Similarly, NHTSA and EPA support their claim that consumers are unwilling to pay for EV technology by suggesting EVs depreciate more over time compared to used internal combustion engine vehicles.[107] Again this analysis fails to incorporate essential features and benefits of Tesla technology. First, unlike conventional automobiles, Tesla vehicles use over-the-air updates – as exemplified by the recent release of it Software Version 9.0 – to make its vehicles perform better

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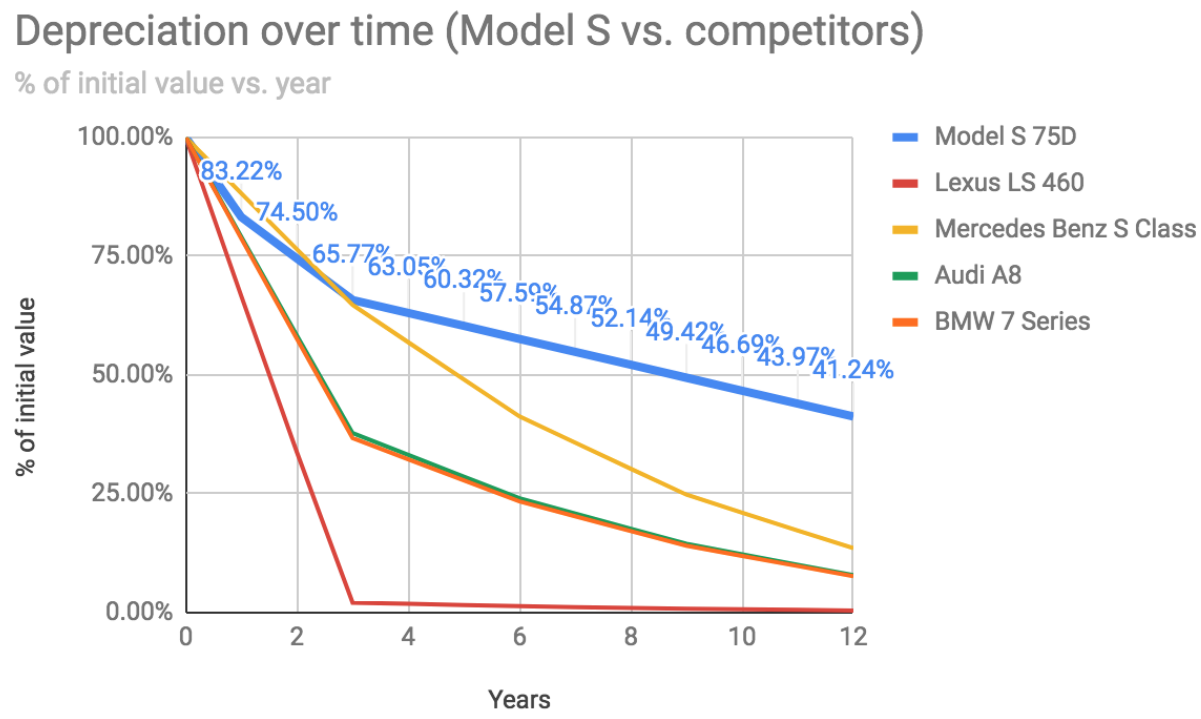
[97] See, U.S. Department of Energy, Charging at Home ("Because residential charging is convenient and inexpensive, most plug-in electric vehicle (also known as electric cars or EVs) drivers do more than 80% of their charging at home.").
[98] See also, Business Insider, The CEO of the world's largest car company flexes on Tesla, touts best-selling electric cars, and says range anxiety is no longer an issue (May 18, 2018) (citing Carlos Ghosn, CEO of the world's largest car company, the Renault-Nissan-Mitsubishi Alliance).
[99] U.S. Department of Energy, Saving on Fuel and Vehicle Costs.
[100] Consumer Reports, Car Buyers Say They'd Pay for Better Fuel Economy (June 12, 2018).
[101] Green Car Reports, Americans still want better fuel economy, survey says (Aug 30, 2018).
[102] The Drive, 30 Million Americans Might Go Electric for Their Next Car, Poll Says (April 26, 2017).
[103] See 83 Fed. Reg. at 43083, fn. 255.
[104] NHTSA asserts that it is unable to utilize Tesla used car data. Accordingly, subject to projections of confidential business information, Tesla has provided the agency with its used car sales data.
[105] See, Edmunds, Used 2016 Audi A8.
[106] See, Edmunds, Used 2016 BMW X5.
[107] 83 Fed. Reg. at 43084.

and add features over time.[108] As a result, a standard view of vehicle depreciation is not directly applicable to these vehicles. Second, NHTSA ignores available studies that show Tesla EVs depreciate less. For example, a 2016 study by Autolist found that:

> To put the depreciation in context, whereas a Tesla (Model S) will on average lose 28% of its value after being driven 50k miles, a Mercedes S-Class will lose 38%, a BMW 7-series will lose 40%, and an Audi A8 will lose 41%. As a result, Tesla owners end up with considerably more money in their pocket.[109]

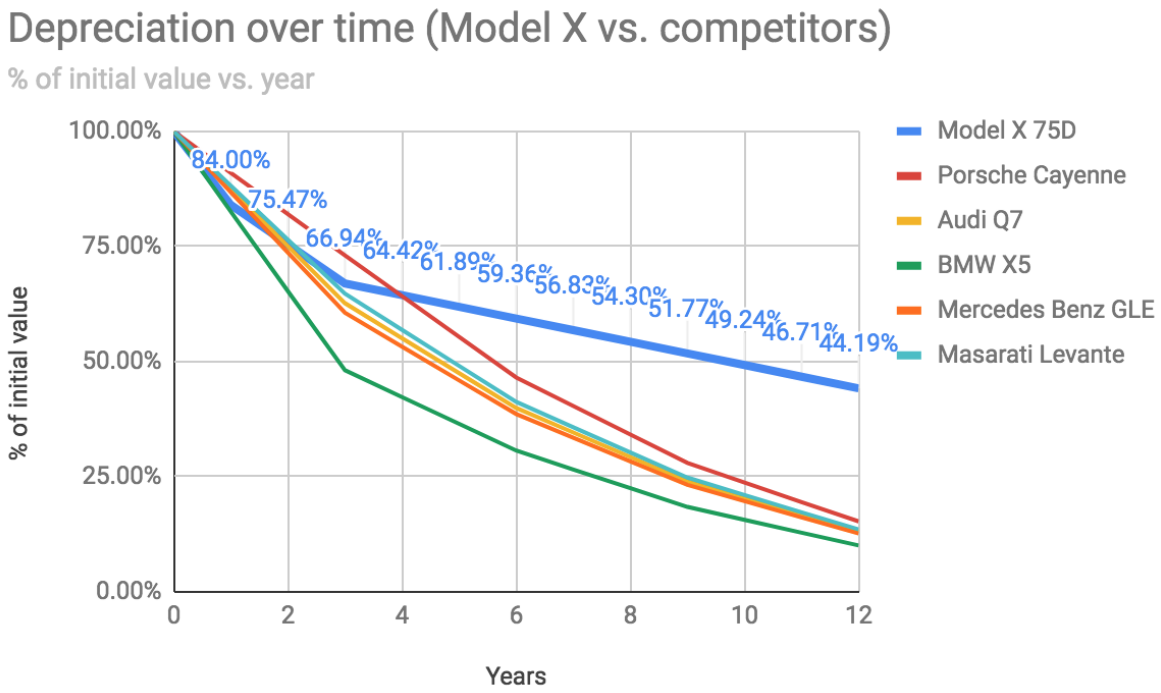
And the study found that used Model S buyers are paying a 5% premium on the already strong value retention of the vehicle.[110] Third, as provided in the charts below, an analysis using Tesla's internal data and available data for comparable internal combustion engine vehicles shows Tesla's Model S and X outperform comparable conventional vehicles by a wide margin (See below, *Figures 3 & 4*).[111]

Figure 3: **Tesla Model S Depreciation Comparison**



[108] See Tesla, Introducing Software Version 9.0 (Oct. 5, 2018).
[109] See, Electrek, Tesla Model S retains its value better than gas-powered cars in its segment, losing only 28% after 50k miles (Sept. 13, 2016).
[110] Id.
[111] These calculations were computed utilizing the DOT's average annual miles driven (rounded up to 14,000 mi/year) for all vehicles; applying Tesla model depreciation curves for age and miles driven to the Tesla models; and comparing comparable vehicle makes and models utilizing the on-line Money Calculator Car Depreciation By Make and Model tool.

Figure 4: **Tesla Model X Depreciation Comparison**



In sum, NHTSA and EPA failed to perform an accurate and comprehensive analysis of consumer willingness to pay for EV technology. The agencies' analysis downplays the consumer benefits of EVs, under-values EV car sales data by excluding Tesla data, and does not account for the unique characteristics of Tesla technology while miscalculating EV depreciation. As a result, NHTSA's and EPA's analysis significantly under-estimates consumers' willingness to pay for EV technology.

V. Rapidly Reducing Technology Costs Make Electric Vehicles Cost Competitive and They Will Be Cheaper Than Internal Combustion Engines Within the Time Period Covered By the Existing Standards

Tesla's success in the marketplace not only shows consumer preference for EVs, it has also allowed Tesla to continue to invest heavily in research and development. These investments continue to yield significant technical advances in battery manufacturing and rapid reductions in overall technology costs.

Over the last six years, cost reductions in Tesla battery technology have outpaced its expectations. In 2012, Tesla stated that the battery systems in its Model S would cost only $350/kWh at production levels of 25,000/year, and that it expected its costs to come down in the future.[112] In the 2016 TAR, NHTSA and EPA asserted:

> In 2014, Tesla Motors began construction of a so-called "Gigafactory" in Nevada in partnership with Panasonic. This factory is commonly cited by Tesla as enabling a potential 30 percent reduction in battery pack costs from the levels Tesla currently pays. According to one analysis, Tesla's current cost is estimated at about $274 per

[112] 77 Fed. Reg. at 62974.

kWh. A 30 percent reduction on that figure would bring costs to about $192 per kWh. [113]

Since that time, Tesla's Gigafactory 1 has started domestic production of advanced lithium-ion batteries. In mid-2018, battery production at Gigafactory 1 reached an annualized rate of roughly 20 GWh, making it the highest-volume battery plant in the world.[114] Tesla currently produces more batteries in terms of kWh than all other carmakers combined. With the Gigafactory ramping up production, Tesla's cost of battery cells has significantly declined through economies of scale, innovative manufacturing, reduction of waste, and the simple optimization of locating most manufacturing processes under one roof. These reductions in battery costs will continue to make Tesla EV technology available to more and more consumers.

a. Tesla Technology Costs Including Batteries Continue To Rapidly Decrease

Costs for Tesla EV technology continue to decrease rapidly while performance increases. From 2008 to 2017, Tesla has decreased the cost of its electric drive unit nearly 80% and projects that the cost will continue to decrease.

Other key Tesla technology metrics also point to a continuing decline in EV costs and improved performance. Tesla designs its battery packs to achieve high energy density at a low cost while also maintaining safety, reliability and long life.[115] Tesla's proprietary technology includes systems for high density energy storage, cooling, safety, charge balancing, structural durability, and electronics management. Tesla has also pioneered advanced manufacturing techniques to manufacture large volumes of battery packs with high quality at low cost.[116]

Tesla engineering and manufacturing efforts have been performed with a longer-term goal of building a foundation for further development. For instance, Tesla has designed its battery pack to permit flexibility with respect to battery cell chemistry and form factor. Tesla maintains extensive testing and R&D capabilities at the individual cell level, the full battery-pack level, and other critical battery pack systems and has built an expansive body of knowledge on lithium-ion cell vendors, chemistry types, and performance characteristics. Tesla believes that the flexibility of its designs, combined with its research and real-world performance data, will enable Tesla to continue to evaluate new battery cells and optimize battery pack system performance and cost for its current and future vehicles.

As Tesla provided in its comments prior to the April 2018 Final MTE, the company has already experienced rapid decreases in battery costs. Today's Model 3 vehicle has a battery with volume manufacturing cost around a quarter that of the 2009 Tesla Roadster. Coinciding with the dramatic price decrease, the performance of Tesla's batteries has improved significantly. For example, the battery peak power density (kW/kg) of the Model 3 has improved by 77% over that of the Tesla Roadster.[117]

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[113] 2016 TAR at 5-27.
[114] See, Tesla, Tesla Gigafactory.
[115] See, Electrek, Tesla battery degradation at less than 10% after over 160,000 miles, according to latest data (April 4, 2018) (highlight the long life of Tesla's batteries).
[116] Tesla, Inc., S.E.C. Form 10-K (Feb. 22, 2018) at 3-4.
[117] Tesla Comment Letter (Oct. 5, 2017 at 4, responding to NHTSA's and EPA's Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards, 82 Fed. Reg. 39551 (Aug. 21, 2017).

Earlier this year, Tesla also indicated the company expects to break through the $100/kWh barrier for lithium-ion cell costs later in 2018, and projects breaking the $100/kWh barrier for battery packs within two years.[118] The $100/kWh barrier has long been considered the tipping point for when widespread adoption of EVs will occur over internal combustion vehicles – something the NPRM erroneously projects will not occur until well after 2025.[119]

b. Industry Projections Consistently Show EV Technology Cost Comparable with Conventional Vehicles

In addition to Tesla's technology cost reductions, other detailed independent, expert, and unbiased analyses predict exponential price decreases for EVs and advanced battery technology. Many analysts predict the global market for EVs is poised for further growth. As the price of batteries – historically the largest cost of the vehicle – continues to decline, other major auto manufacturers will commit increasingly significant resources to electrifying their fleets.

Lithium-ion battery prices have already rapidly decreased in recent years. Beyond the significant cost reductions experienced by Tesla, other analyses confirm the accelerating price decreases. In 2010 EV battery pack prices averaged $1,000/kWh. By 2017 average prices hit a low of $209/kWh – a 79% drop in seven years.[120] And, by the end of 2017, prices per kilowatt-hour were down 24% from 2016 levels.[121] The expected increase in mass manufacturing of lithium-ion storage should help drive battery prices to $96/kWh by 2025 and $70/kWh by 2030.[122] As one expert financial analyst recently stated:

> At the rate that battery prices are coming down, we're going to be to a point in the next five years where it's not a choice between paying more to drive an electric vehicle versus an internal combustion engine. It's going to be a comparable choice.[123]

Similarly, at the end of 2017, Merrill Lynch analysts predicted EVs in the U.S. will be cheaper than their traditional counterparts by 2024, and just the year prior they had estimated it would take until 2030.[124] And Bloomberg predicts EVs may be cheaper than their petroleum counterparts by 2025 as the cost of lithium-ion batteries continues to fall.[125] Such significant real world and predicted decreases in technology costs contradict the findings and basis for NHTSA's and EPA's proposed relaxation of the LDV Standards and support an increase the stringency of the standards.

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[118] See, Utility Dive, Musk says Tesla can get li-ion cell prices below $100/kWh this year (June 6, 2018); Electrek, Tesla might have achieved battery energy density and cost breakthroughs (June 9, 2018); Inside EVs, Highlights From The Tesla Annual Shareholder Meeting (June 6, 2018).
[119] See, Industry Week, Electric Car Batteries Drop Closer to a Cost Tipping Point (Dec. 5, 2017).
[120] BNEF, Electric Vehicle Outlook 2018 (May 25, 2018).
[121] Bloomberg, The Latest Bull Case for Electric Cars: the Cheapest Batteries Ever (Dec. 5, 2017).
[122] PoliticoPro DataPoint: Bloomberg: Lithium ion Battery Prices Will Continue to Fall (April 18, 2018).
[123] Goldman Sachs, An Inflection Point in the Global Expansion of Electric Vehicles (May 2018).
[124] New York Times, What Needs to Happen Before Electric Cars Take Over the World (Dec. 19, 2017).
[125] Bloomberg, Electric Cars May Be Cheaper than Gas Guzzlers in Seven Years (March 22, 2018); Axios, The race for the next billion cars (Sept 27, 2018).

VI. Maintaining Strong CAFE and GHG Performance Standards that Reward Electrification Is Consistent with Improving Vehicle Safety and the Agencies Fail to Refute the Strong Record to Reverse its Policy Position

NHTSA and EPA ignore that, over the last ten years, the most significant changes to improving structural crashworthiness has been the removal of the internal combustion engine (ICE). EVs have no large engine in the front and the engine is replaced with either small electric motors or no front motors at all. This means that the vehicle can absorb and distribute load to more of the vehicle structure without deforming into the occupant space and transferring loads to the occupants. The result is improved crash performance.

Additionally, the removal of combustible gasoline fuel from crashes also means a reduction of the likelihood of fire. While any fuel source in a vehicle can cause a fire, gasoline-fuel fires consume vehicles quickly and unpredictably, while electric battery chemical thermal degradation is slow and progressive and can be vented away from the occupant cabin. Electric battery fires often self-extinguish, and where they propagate, they do so slowly, allowing for occupant escape before fire reaches the occupant space. According to the National Fire Protection Association (NFPA), 69% of vehicle fires and 39% of fire-related deaths occur because of fire in the engine area, running gear, or wheel area, and whereas mechanical malfunctions were a factor in 45% of fires and 11% of deaths, electrical malfunctions were a factor in only 25% of fires and 1% of deaths.[126] In sum, there are fewer fires in EVs and in the rare event that they do occur, they are far less dangerous.

Lastly, removing the ICE engine, removes thousands of pounds of weight from the front, and relocates weight to central locations of the chassis, which allows a low center of gravity and improves stability, handling, and rollover risk. This significantly benefits safety. For example, at this time, Tesla Model S and Model 3 have received the lowest probably of rollover of any vehicles evaluated in NHTSA's New Car Assessment Program (NCAP). This is a direct result of purpose built all-electric design. Rollovers have a disproportionate safety risk compared to other crash modes. According to NHTSA's own data, in 2010, only 2.1% of passenger vehicle crashes involved a rollover, but these crashes resulted in nearly 35% of all deaths.[127]

a. NHTSA's Five-Star Safety Ratings of Tesla Vehicles Demonstrates that Safety Is Not Significantly Enhanced By Manufacturing High-Efficiency Electric Vehicles

Tesla produces the safest vehicles on the road and has proven that manufacturing highly-efficient, fully electric vehicles enhances, rather than sacrifices safety.

Recently, NHTSA released its official data based on independently conducted crash tests, awarding Tesla's Model 3 RWD a 5-star safety rating in every category and sub-category.[128] Importantly, using NHTSA's method of calculating the likelihood of bodily injury for front, side and rollover crashes, results show that Model 3 has the lowest injury probability of any car NHTSA has ever tested in the current NCAP.

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[126] NFPA, Automobile Fires in the U.S.: 2006-2010 Estimates (Sept. 2012).
[127] NHTSA, safercar.gov, Fatalities.
[128] NHTSA, 2018 Tesla Model 3 (4 DR RWD; See also, Wired, Model 3 Crash Testing Hammers Home Tesla's Safety Excellence (Sept 21, 2018); CleanTechnica, Tesla Model 3's Straight 5 Stars from NHTSA Beat Competing Mercedes & BMW Models (Sept. 20, 2018).

In NHTSA's NCAP, the agency calculates Vehicle Safety Scores ratings based on a weighted average of scores in front, side, and rollover testing. Tesla's Model 3[129] and Model S[130] achieve the lowest scores among all passenger cars tested in the program since it began in 2011, and Model X did the same among SUVs.[131] This data disproves the agencies' contention regarding safety – that active engineering is a secondary factor to the seeming arms race in increasing vehicle size and mass.

Indeed, the basic characteristics of EV design, including small or no motors in front, large crush space for energy absorption, lack of combustible fuel, and low centered batteries that result in extremely low center of gravity and nearly perfect weight distribution, mean they are he safest vehicles in the world.

b. Past Analysis Supporting the Ability to Meet the Existing LDV Standards and Ensure Safety Has Not Been Refuted

The NPRM's assertion that maintaining the current standards harms vehicle safety has long been refuted by expert and reliable unbiased third party organizations, including the National Academies of Science (NAS). As the Center for Auto Research recently stated:

> In fact, the U.S. auto industry has widely employed alternative materials, such as high-strength steel, aluminum, magnesium, plastics and composites, to help improve fuel economy for many years, along with many other technologies related to engine, transmission and hybrid-electric powertrain technology.
>
> Even though the average size of vehicles in the U.S. fleet has increased, average vehicle weight has remained constant for the past 15 years, while fuel economy has improved considerably. And automakers still have to comply with crash worthiness ratings set by the National Highway Traffic Safety Administration. There really is little or no correlation between vehicle safety and fuel economy. As recent crash test results show, fuel-efficient cars can achieve excellent safety ratings.[132]

In addition, NHTSA's 2012 Final Rule contradicts the current proposal, where the agency then stated:

> [J]udicious combinations of mass reductions that maintain footprint and are proportionately higher in the heavier vehicles are likely to be safety-neutral— i.e., they are unlikely to have a societal effect large enough to be detected by statistical analyses of crash data. The primarily non-significant results are not due to a paucity of data, but because the societal effect of mass reduction while maintaining footprint, if any, is small.[133]

Likewise, in 2012, the agency also recognized that active engineering and behavioral changes will continue to enhance safety, points that the current assessment fails to address and disregards:

> future technological advances could potentially mitigate the safety effects estimated for this rulemaking include the following: lightweight vehicles could be designed to

[129] Id.
[130] NHTSA, 2015 Tesla Model S (60 kWh, 5 HB RWD).
[131] NHTSA, 2018 Tesla Model X (P90D SUV AWD).
[132] The Conversation, Freezing fuel economy standards will slow innovation and make US auto companies less competitive (Sept 28, 2018)
[133] 77 Fed. Reg. at 62747.

> be both stronger and not more aggressive; restraint systems could be improved to deal with higher crash pulses in lighter vehicles; crash avoidance technologies could reduce the number of overall crashes; roofs could be strengthened to improve safety in rollovers.[134]

In its January 2017 MTE, after extensive analysis by EPA and NHTSA in the 2016 TAR, the agencies found that the nation's vehicle fleet can achieve modest levels of mass reduction as one technology among many to meet the MY2022-2025 standards without any net increase in fatalities.[135] The finding provided "that the existing MY2022-2025 standards will have no adverse impact on automobile safety. There is no evidence in the public comments that suggests a different conclusion."[136] The agencies also confirmed that a 2015 NAS study further found that the footprint-based standards are likely to have little effect on vehicle and overall highway safety.[137] And it concluded that the existing MY2022-2025 standards would have no adverse impact on automobile safety.[138] The conclusion was supported by a detailed chapter in the TAR.[139] The April 2018 Final MTE does not provide any refutation of the detailed safety analysis contained in the TAR, nor does it purport to withdraw the TAR or to update it, and simply makes vague references toward looking further at fleet turnover.[140]

Although in the NPRM the agencies now imply that vehicles are becoming less safe under the LDV Standards, this is disproved by their own analysis. The agencies' analysis finds that there are zero statistically significant fatalities (at the 95th percentile) that result from changes to vehicles made as a result of the standards (i.e., mass reduction). Specifically, the agencies acknowledge that "None of the estimated effects [of mass reduction] have 95-percent confidence bounds that exclude zero, and thus are not statistically significant at the 95-percent confidence level."[141] In other words, fatalities from changes made to vehicles as a result of the standards are statistically indistinguishable from zero.

c. NHTSA's Suggestion that Light-weighting of Vehicles Harms Safety is Misplaced

Motor vehicle safety and vehicle weight are no longer directly connected. Weight as the defining basis of vehicle-to-vehicle crashworthiness is an antiquated idea. Over the past 15 years, nearly all safety innovation in motor vehicle has been in the form of active safety features that prevent or reduce crashes, rather than passive safety features that prevent or reduce injuries in crash. Passive safety improvements have been largely related to improving airbags and ejection mitigating air curtains, and to a minor extent, reduction in electrolyte spillage in hybrids and EVs.

The only significant structural performance change came from increasing roof crush strength, which came from implementation of stronger steel and aluminum alloys. However, at the same time, motor vehicles have extensively benefited from the following active safety innovations: Electronic Stability Control, Automatic Emergency Braking, Forward Crash Warning, and Lane Keeping (AEB, FCW, and Lane Keeping are not mandated and generally make up what we call advanced driver assistance systems). In sum, NHTSA's analysis reflects an antiquated and discredited view that

[134] 77 Fed. Reg. at 62767.
[135] January 2017 MTE at 27.
[136] Id.
[137] Id.
[138] Id.
[139] See, 2016 TAR at 8-1 thru 8-65.
[140] 83 Fed. Reg. 16077, 16086 (April 13, 2018).
[141] 83 Fed. Reg. at 43111.

vehicle safety can only be accomplished through an arms race of ever bigger and heavier vehicles. This approach ignores that very little safety innovation in the past 15 years has come from weight and vehicle strength.

While there is little argument that vehicle weight improves outcomes in vehicle-to-vehicle crashes (for every heavier vehicle that might have an improved outcome, it comes at the expense of the lighter vehicle that might have a worse outcome), NHTSA has consistently understood, for more than a decade, that vehicle mass reduction has a compensating effect. Removing mass from heavier vehicles improves the safety of all vehicles by decreasing crash weight differentials, while removing mass from lighter vehicles may have a compensating effect.[142] Indeed, NHTSA's own technical analysis has shown "potential combinations of mass reductions that maintain footprint and are proportionately somewhat higher for the heavier vehicles may be safety-neutral or better . . . [and] unlikely to significantly increase fatalities."[143] And this has been supported with other findings from the NAS[144] to the Insurance Institute for Highway Safety.[145]

The agencies misrepresent the NAS' conclusions through selectively omitting the Academy's most central findings. While NHTSA acknowledges this report, it summarizes its findings, in its Preliminary Regulatory Impact Analysis, by stating:

> In 2015, the National Academy of Sciences published the report "Cost, Effectiveness and Deployment of Fuel Economy Technologies for Light-Duty Vehicles." . . . The Committee acknowledged the possibility of negative safety effects during the transition period because of variances in how reductions occurred. Because of this, the Committee recommended NHTSA consider and, if necessary, take steps to mitigate this possibility.[146]

Yet NHTSA completely fails to recite the Academy's central conclusion, that mass reduction approaches are likely to have an overall beneficial effect on safety:

> Manufacturers are likely to make cars lighter in their efforts to improve fuel economy. *The most current studies support the argument that making vehicles lighter, while keeping their footprints constant, will have a beneficial effect on safety for society as a whole*, especially if the greatest weight reductions come from the heaviest vehicles, the report says.[147]

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[142] 2016 TAR at 8-6, 8-60-61.

[143] See NHTSA," Relationships between Fatality Risk, Mass, and Footprint in Model Year 2003-2010 Passenger Cars and LTVs" (June 2016) at 3.

[144] See e.g., National Research Council, "Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light Duty Vehicles" (2015) at 13 ("An important motivation for adopting a standard based on vehicle footprint (the vehicle's wheelbase times the average track width) is to be safety-neutral. The committee found the empirical evidence from historical data appears to support the argument that the new footprint-based standards are likely to have little effect on vehicle and overall highway safety.").

[145] Bloomberg, Safety Gains from Heavier Cars May Be Cited to Cut MPG Rules (February 12, 2018) ("[The Insurance Institute for Highway Safety] is supportive of the fuel economy standards as implemented," spokesman Russ Rader said. "The Obama-era changes to the rules, essentially using a sliding scale for fuel economy improvements by vehicle footprint, addressed safety concerns that IIHS raised in the past.)

[146] NHTSA, EPA, Preliminary Regulatory Impact Analysis (July 2018) at 1343.

[147] News from the National Academies: Analysis Used by Federal Agencies to Set Fuel Economy and Greenhouse Gas Standards for U.S. Cars Was Generally of High Quality; Some Technologies and Issues Should Be Re-examined (June 18, 2015)(emphasis added).

This refusal to acknowledge these expert and unbiased peer-review findings further undermines the agencies conclusion regarding vehicle safety.

d. NHTSA's and EPA's Focus on Fleet Turnover as a Safety Factor Is Flawed

In the NPRM, the agencies rely on projections from NHTSA's new, non-peer-reviewed scrappage model to assert that as the prices of new vehicles go up, the prices of existing vehicles will also go up, and as a result the rate of used vehicle scrappage will go down, leading to an increase in the overall vehicle fleet. NHTSA further assumes—without justification—that the total miles driven is wholly determined by the number of vehicles, so as the fleet size increases, so does total vehicle miles traveled. And as a result of the increase in driving, accidents and fatalities will rise. The agencies' assert that they must roll back the standards to prevent people from driving more and putting themselves at risk of traffic fatalities.

There seem to be serious economic questions with any model that predicts that as the price of something (in this case, vehicles) goes up, demand for that good will increase. Even assuming the model is sound, it does not seem reasonable or lawful for the agencies to justify failing to fulfill their statutory obligations through the claim that doing so will keep people from driving more and therefore reduce traffic fatalities.

It is also worth noting that in discussing possible dynamics between new and existing vehicles under fuel economy or GHG standards, NHTSA relies on an outdated conclusion regarding the age of vehicles and safety. NHTSA asserts that older vehicles in the population are responsible for a disproportionate number of fatalities, both by number of registrations and by number of miles driven. And as result, any factor that causes the population of vehicles to turnover more slowly will induce additional fatalities — as those older vehicles continue to be driven, rather than being retired and replaced with newer (even if not brand new) vehicle models.[148] This baseline assumption – that the only way to enhance safety is through fleet turnover – is outdated and inapplicable to Tesla vehicles. Indeed, EPA has provided an in-depth critique of the NHTSA modeling that supports this flawed assumption.[149]

In direct contrast to this assumption, Tesla vehicles get safer over their lifetime. Using over-the-air (OTA) updates, Tesla updates its vehicle software approximately every two weeks. For example, through this vehicle connectivity, Tesla has enhanced the safety of vehicles already on the road, including by introducing Automatic Emergency Braking in Model S, X, and 3, as well as adding fleet/parental speed limiters that let parents prevent teens from speeding, and cabin overheat protection that keeps the air conditioning on to prevent injuries that disproportionately affect children and the elderly.

More specifically, in past years numerous OTA software updates have improved the safety of Tesla vehicles already on the road. The high-level list of notable OTA safety-related enhancements, noted by software version, from previous years, includes:

- 6.1 – TACC (Adaptive Cruise Control), FCW (Forward Collision Warning), Enhanced Park Assist View, and Speed Assist.

[148] 83 Fed. Reg. at 43188; 83 Fed. Reg. at 43212

[149] See, Email from William Charmley to Chandana Achanta, Chad Whiteman, and Jim Laity at EOP/OMB (June 18, 2018), Attachment at 8, 13-120, 95, 97, 122; See also: https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453

- 6.2 – AEB (Automatic Emergency Braking), Blind Spot Warning, Valet Mode, and Improved Maps and Navigation.
- 7.0/7.1 – Major improvements (including use restrictions) to Autosteer, Autopark, TACC, vehicle lock, and auto-brightness.
- 8.0 – Voice commands, enhanced radar capabilities, and more expansive mapping.
- 8.1 – Bring Autopilot HW (hardware) 2.0 features to parity with HW 1.0 features.

In 2018, the high-level list of notable Tesla OTA safety improvements includes:

- New vision system (major improvements to object and path detection for Traffic-Aware Cruise Control and Autosteer) (Autopilot Hardware 2.0/2.5).
- Improvements to radar-only braking within Autopilot (Autopilot Hardware 1.0).
- Improvements to increase the stringency of Autosteer's driver engagement system.
- Parental/fleet vehicle speed limiter.
- Performance improvement to ABS software calibration (Model 3 only).

Electronics, and not weight, are the dominant characteristic in improving safety over the past 10 years. This paradigm of continual vehicle safety improvement undercuts NHTSA's assumption that increasing vehicle age and/or delayed fleet turnover automatically portends an increased safety risk. And while Tesla is the manufacturer leading vehicle connectivity and OTA updates, the use of OTA updates is rapidly being more widely adopted throughout the industry.[150] NHTSA's focus on fleet age ignores this new paradigm in vehicle safety. Indeed, Tesla proves every two weeks that an aging car can still become a better, safer car.

Tesla's use of autonomous features is a case in point. The results are not speculative. Earlier in 2018, Tesla made the decision to begin publishing its safety data on a regular basis. Tesla designed and introduced a completely new telemetry stream for our vehicles to facilitate these reports. This new data stream allows us to gather the most critical fleet-wide statistics from the exact moment a crash-related event is detected by our system. While there are still some unique cases in which crash data may not be available to us through this channel, Tesla believes this system currently provides the best framework for safety reporting on an ongoing basis.

The data for Q3 in 2018 exemplify how Tesla Autopilot (as described above being continually updated) is enhancing and improving the safety of vehicles already on the road. The highlights include:

- Over the past quarter, Tesla registered one accident or crash-like event for every 3.34 million miles driven in which drivers had Autopilot engaged.

- For those driving without Autopilot, Tesla registered one accident or crash-like event for every 1.92 million miles driven.[151]

[150] See e.g. Forbes, With Here OTA Connect, Over-the-Air Software Updates Finally Become Common For Cars (May 25, 2018).
[151] Tesla Blog, Q3 2018 Vehicle Safety Report (October 4, 2018).

By comparison, NHTSA's most recent data shows that in the U.S., there is an automobile crash every 492,000 miles.[152] While NHTSA's data includes accidents that have occurred, our records include accidents as well as near misses.

Yet again, this data shows that antiquated characteristics like weight are no longer the dominant characteristics in improving safety. Tesla's performance and high-efficiency can be combined with improved safety, and improved safety can be realized by its existing vehicle fleet while maintaining stringent LDV Standards.

e. The NPRM's Focus on Cost and Relations to Fleet Turnover Is Not Matched in the Promulgation of Other Recent Safety Standards

Over the past 5 years, NHTSA has created or modified ten separate Federal Motor Vehicle Safety Standards (FMVSS) (See below, *Figure 5*). While NHTSA has routinely examined the cost and benefits of such rules, and the length of time for fleet implementation, the agency has never considered whether additional cost will increase the cost of existing vehicles, thereby increasing total driving and traffic fatalities —nor whether additional cost will reduce fleet turnover that could prevent benefits from unknown future safety improvements. This departure from NHTSA's basic approach to safety regulation is unjustified. To the contrary, NHTSA has repeatedly enacted FMVSS that increase initial cost and maintenance.

Figure 5: **10 FMVSS Final Rules since September 2013**

FMVSS #	FMVSS Final Rule	Reason	Fleet Retirement/ Scrappage Mentioned	Reference
141	Minimum Sound for Hybrids and EVs	Final Rule; implementation delay; delayed timeline	No	2018-03721 2017-11732 2017-10504 2017-05543 2017-02428 2016-28804
136	ESC for Heavy Vehicles	Final Rule; Technical correction for longer wheelbase turning	No	2017-23531 2015-14127
305	EV Electrolyte Spillage and Electrical Shock Protection	Deregulatory action to allow barrier isolation and harmonize more with UN/ECE	No	2017-20350
110	Tire Selection and Rims	Special trailer tires eligible for vehicles under 10K lbs and exempt from blowout requirements	No	2016-27051

[152] While NHTSA's data includes accidents that have occurred, Tesla records include accidents as well as near misses (crash-like events).

108	Lamps, Reflective Devices, and Associated Equipment	Changes to reflector photometry for longer vehicles; license plate holder lamps	No	2016-02268 2015-31353
101	Controls, Telltales, and Indicators	Technical correction for error in ESC telltale for heavy truck	No	C1-2015-14127
571.10	Designated Seating Positions	Correction of error on size of seating position	No	2014-23010 2013-27105
111	Rear Visibility	Final rule requiring back-up cameras	No	2014-07469
210	Occupant Protection	Final Rule requiring lap/shoulder belts for all over-the-road buses	No	2013-28211
226	Ejection Mitigation	Requiring ejection mitigation system	No	2013-21605

NHTSA's focus has been on analyzing the costs of vehicle safety equipment compared to the quantifiable injury savings. In doing so, NHTSA has repeatedly considered the fleet saturation rate and the timeline for achieving complete fleet compliance. This has been the case for establishment of FMVSS 141 (minimum sound for hybrids/EVs), 136 (ESC for heavy trucks), 111 (rear visibility cameras), and 210 (lap/shoulder belts for buses/motor coaches).

In one example, FMVSS 210 (lap/shoulder belts for buses/motor coaches), NHTSA considered whether the additional safety requirement would add additional upkeep and maintenance costs for lap/shoulder belts, and by inference, that buses may have to be retired sooner because of added safety equipment. However, NHTSA found this cost to be negligible.

As NHTSA has now altered its safety analysis, the agencies' contentions do not match the real world evidence. Despite rising average vehicle prices from this combination of enhanced features and improved fuel efficiency, new vehicle sales remain near record levels, and fleet turnover as a result is continuing apace.[153] NHTSA's untested theories about the impact of fuel efficiency features on safety feature fleet penetration is not matched by real world experience. At bottom, NHTSA and EPA contend that fuel economy gains come at the expense of new car purchases and fleet turnover. The agencies state:, "Along with these gains, there have been tremendous increases in vehicle prices, as new vehicles become increasingly unaffordable."[154] Yet these statements fail to account for the basic fact that new vehicles sales trends overall have reached near record sales levels, and have climbed steadily since the economic downturn in 2009.[155]

[153] See e.g. New York Times, "Car Sales End a 7-Year Upswing, With More Challenges Ahead" (Jan.3, 2018) ("Despite last year's decline, domestic auto sales remain at a historically healthy level.").
[154] 83 Fed. Reg. at 42993.
[155] See Light Weight Auto Sales: Autos and Light Trucks, Federal Reserve Bank of St. Louis Economic Research (Sept. 2018).

f. The NPRM's Focus on Cost and Relations to Fleet Turnover – As it Purportedly Impacts Safety –- Is Not Matched in Other Administration Policies Directly Impacting Auto Manufacturers

Similar to the FMVSS safety analysis lacking consideration of whether additional cost will increase driving or reduce fleet turnover that could prevent benefits from unknown future safety improvements, the Administration has implemented a number of new policies that have the potential to make an even larger impact on vehicle prices. In implementing these policies, however, the Administration failed to provide a similar scrappage model as contained in the NPRM.

NHTSA estimates that current LDV Standards raise car prices by $2,100 compared to its preferred NPRM outcome.[156] In comparison, the various layers of new import tariffs will significantly impact vehicle prices. AAPC estimates that implemented Section 232 tariffs on steel and aluminum against import will raise auto prices $400 per vehicle.[157] A Center for Automotive Research analysis found the potential impact of the Section 232 auto and auto parts would be to raise new vehicle prices between $455 and $6,875.[158] And accounting for both tariffs, a Peterson Institute analysis finds the tariffs would raise car prices for buyers between $1,400 and $7,000 for the top selling models across three categories — compact cars, compact SUVs/crossovers, and luxury SUVs/crossovers — assuming that automakers would pass along the extra cost to consumers, either at 66 or 100 percent of the import tax.[159] Finally, new Section 301 tariffs targeting numerous auto sector imports could also significantly increase the price of vehicles.[160] In sum, while no corresponding safety concerns are raised around the implementation of these new tariffs, it should be noted that new car prices will increase by considerably more than what would be allegedly saved by consumers under the preferred NPRM outcome.

VII. EPA Does Not Have Authority to Revoke California's Clean Air Act Waiver and EPCA Does Not Preempt California's Waiver

a. The Clean Air Act Provides a Prominent Role for California GHG Emission Standards

It is settled law that "[i]f EPA makes a finding of endangerment [for any air pollutant], the Clean Air Act ("CAA") requires the Agency to regulate emissions of the deleterious pollutant from new motor vehicles." *Massachusetts v. EPA*, 549 U.S. 497, 533 (2007) (citing Section 202 of the CAA, 42 U.S.C. § 7521(a)(1)).[161] In 2009, EPA made such an "endangerment finding" for GHGs triggering the

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[156] 83 Fed. Reg. at 42994. Notably, in the January 2017 MTE, based on the 2016 TAR, EPA determined that the per vehicle cost of complying with the existing LDV Standards dropped from 2012 estimates of about $1,100 to $875. EPA, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (January 2017) at 4-5.

[157] American Automotive Policy Council, Comments on U.S. Section 232 Investigation into the Effects of Imports of Cars, SUVs, Vans and Light Trucks, & Automotive Parts on National Security (June 29, 2018) at 8, n. 20.

[158] CAR, Trade Briefing: Consumer Impact of Potential U.S. Section 232 Tariffs and Quotas on Imported Automobiles & Automotive Parts (July 2018) at 1.

[159] Peterson Institute for International Economics, Car Buyers May Face Sticker Shock from Trump's Proposed Auto Tariffs (July 23, 2018).

[160] See, Foley and Lardner, New Section 301 Tariffs Target Numerous Automotive-Sector Imports: Coping Strategies and Prospects for Product-Specific Relief.

[161] In Massachusetts, the Supreme Court was abundantly clear that the Clean Air Act provides broad authority to regulate any air pollutant under that section of the Act. Id. at 532. *Util. Air Regulatory Grp. v. E.P.A.*, 573 U.S. 302 (2014) ("In Massachusetts, the Court held that the Act-wide definition includes greenhouse gases because it is all-encompassing; it 'embraces all airborne compounds of whatever stripe.'").

requirement that the agency regulate those air pollutants in its motor vehicle standards.[162] Under Section 209 of the CAA, 42 U.S.C. § 7521(b), California received waivers of preemption to enact state standards for GHGs.[163] In an effort to forge one National Program, the Federal Government reached a landmark deal with automakers and with California, in which California agreed to deem compliance with federal motor vehicle emissions standards to be in compliance with its LEV III GHG Standards. Based in large part on this national car "deal," and California's waiver authority, EPA and NHTSA jointly promulgated the first version of the federal GHG emissions standards at issue today.

The NPRM ignores EPA's obligation to set appropriate GHG standards, and seeks to undermine the legal and policy basis for California's LEV III GHG Standards waiver. The NPRM upsets settled reliance interests, particularly for automobile manufacturers whose time- and resource-intensive research and development, engineering, and production ramps require regulatory certainty and lead time. For the reasons articulated below, it is contrary to the law.

b. EPA Does Not Have Legal Authority to Revoke California's Waiver

The CAA does not confer any authority on EPA to revoke an already-granted waiver. *See* 42 U.S.C. § 7543. Yet EPA now proposes to revoke California's long-standing waivers to enact and enforce GHG emissions standards.

EPA acknowledges in its NPRM that the CAA provides no express authority to revoke an existing waiver; it argues, instead, that the authority to withdraw a waiver is "implicit."[164] Its argument relies on superseded legislative history, which suggests that the EPA Administrator has "the right . . . to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of that waiver," S. Rep. 90-403, at 34 (1967). EPA's reliance on this lone statement is misplaced for several reasons. The legislative history cannot overcome the textual omission of revocation authority within the text of the statute, because courts do not "allow[] ambiguous legislative history to muddy clear statutory language." *Milner v. Dep't of Navy*, 562 U.S. 562, 572 (2011). Further, the 1967 statement must be viewed in the context of later amendments, which specifically sought to significantly "broaden and strengthen California's authority to prescribe and enforce separate new motor vehicle emissions standards," and maximize California's regulatory authority and flexibility in the motor vehicle realm, casting significant doubt on whether the 1967 statement remains valid. H.R. Rep. No. 95-294, at *23, 233 (Conf. Rep.) (1977). Finally, even taking the 1967 statement at face value, it is on its own terms limited to situations where California "no longer complies with the conditions" of an existing waiver. EPA does not identify any conditions imposed in 2009 or 2013 that California has violated.

Neither does EPA have *inherent* authority to revoke the California waiver.[165] An agency is "a creature of statute" and has no "constitutional or common law existence or authority, but only those authorities conferred on it by Congress." *Michigan v. EPA*, 268 F.3d 1075, 1081 (D.C. Cir. 2001). Congress has not conferred such authority on EPA. Congress's decision to not provide such reconsideration authority is logical: any reconsideration here would impermissibly injure reliance interests, including those represented by manufacturers such as Tesla. *See, e.g.*, *Nat'l Ass'n of Trailer Owners, Inc. v. Day*, 299 F.3d 137, 139-40 (D.C. Cir. 1962) (reconsideration authority "must be exercised both within a reasonable time after the issuance of a final departmental decision and

[162] 74 Fed. Reg. 66496 (Dec. 15, 2009).
[163] 74 Fed. Reg. 32744 (July 8, 2009); 78 Fed. Reg. 2112 (Jan. 9, 2013).
[164] 83 Fed. Reg. at 43242.
[165] Id.

without subjecting the parties affected by any undue or unnecessary hardships"). Tesla's reliance interests alone would prohibit reconsideration here.[166]

c. *Even if EPA Had Authority to Revoke a Waiver, Revocation Is Unjustified Here*

Under the CAA, EPA is *required* to grant California's waiver requests unless EPA finds that California does not have a compelling and extraordinary need for such standards, that California's approach is not at least as stringent as the Federal one, or that California has acted arbitrarily. *Motor & Equip. Mfrs' Ass'n v. EPA*, 627 F.2d 1095, 1111 (D.C. Cir. 1979); *see also Motor & Equip. Mfrs' Ass'n v. Nichols*, 142 F.2d 449, 463 (D.C. Cir. 1998) (noting that the third basis for declining to grant a waiver "relates in relevant part to technological feasibility" (citation omitted)). The D.C. Circuit has explained that EPA "is not to overturn California's judgment lightly," that California must have "the broadest possible discretion in selecting the best means to protect the health of its citizens," and may "blaze its own trail with a minimum of federal oversight." *Motor & Equip. Mfrs' Ass'n v. Nichols*, 142 F.2d 449, 463 (D.C. Cir. 1998) (citations omitted). *See also* H.R. Rep. No. 294, 95th Cong., 1st Sess. 301-02 (1977), U.S. Code Cong. & Admin. News 1977, p. 1380.

Assuming that EPA has authority to revoke a waiver at all, the permissible bases to revoke a waiver could not logically be broader than the permissible bases to refuse to grant a waiver request in the first instance. Here, EPA cannot show that any of the reasons for refusing to grant a waiver request apply.

EPA cannot show here that California lacks a compelling and extraordinary need. California has continued to extensively demonstrate compelling and extraordinary conditions due to *both* the growing scientific understanding of climate impacts in the State, and how GHG pollution itself exacerbates air quality challenges. As described earlier, EPA ignores the extensive record--much of it generated by EPA itself--demonstrating the extent of the impacts California faces due to climate change.[167] Meanwhile, climate change continues to exacerbate other forms of air pollution in California. As EPA has acknowledged, "Climate change is expected to increase regional ozone pollution, with associated risks in respiratory illnesses and premature death."[168] This says nothing of the increased particulate matter pollution that extreme heat also leads to when it creates weather conditions prone to wildfire.

California has demonstrated technical feasibility. EPA ignores its own previous analysis here, too, and does not explain how the extensive record it developed jointly with NHTSA and CARB for the January 2017 MTE is no longer relevant.[169]

Congress's express and well-considered grant of broad discretion to California has been validated by decades of innovation in California, and in the numerous states that have adopted California's

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[166] EPA also unconvincingly argues that its reconsideration is timely. An agency may only reconsider its decision "within the period available for taking an appeal." *Am. Methyl Corp. v. EPA*, 749 F.2d 826, 836 (D.C. Cir. 1984). Under the Clean Air Act's 60-day period for judicial review, 42 U.S.C. § 7607(b)(1), "[t]hat period has long expired here," *Am. Methyl*, 749 F.2d at 836.

[167] See 78 Fed. Reg. 2112, 2129 (Jan. 9, 2013) (discussing "[r]ecord-setting fires, deadly heat waves, destructive storm surges, loss of winter snowpack"); 74 Fed. Reg. at 66532 ("[t]his pattern of reduced snowpack and changes to the flow regime pose very serious risks to major population regions, such as California, that rely on snowmelt-dominated watersheds for their water supply."); California's Fourth Climate Change Assessment, Statewide Summary Report (2018) at 13 ("California is one of the most 'climate-challenged' regions of North America.").

[168] 74 Fed. Reg. at 66525.

[169] This is to say nothing of the fundamental design feature of the Clean Air Act: that it was intended to be technology-forcing. See, e.g., *Whitman v. American Trucking Ass'n*, 531 U.S. 457, 492 (2001).

emissions standards under Section 177 of the CAA. The growth of businesses such as Tesla's, which have proven the feasibility and consumer demand for zero emission vehicles, is testament to the wisdom of that Congressional intent. Nothing less is required if we seek to address climate and air quality challenges that endanger public health and welfare.

d. The Energy Policy and Conservation Act ("EPCA") Does Not Preempt California's Greenhouse Gas Regulations or Confer Any Authority on EPA to Revoke California's Waiver

EPCA's preemption provision provides that "a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter." 49 U.S.C. § 32919(a). The NPRM argues, therefore, that California's LEV III GHG standards are preempted as a *de facto* regulation of fuel economy.[170] Congress did not design EPCA's preemption provision, however, to address the types of standards California and other States have enacted to control GHG pollution.

To begin with, the CAA does not authorize revocation of a waiver on the grounds that it is somehow preempted by EPCA. The CAA provides narrow grounds on which EPA can reject a waiver, none of which relate to whether California's proposed standard might be preempted under EPCA. 42 U.S.C. § 7543(b). As the D.C. Circuit has explained in the context of § 209(b), "there is no such thing as a 'general duty' on an administrative agency to make decisions based on factors other than those Congress expressly or impliedly intended the agency to consider." *Motor & Equipment Mfrs' Ass'n v. EPA*, 627 F.2d 1095, 1116 (D.C. Cir. 1979); *see also, e.g.*, *Motor & Equipment Mfrs' Ass'n v. EPA*, 142 F.3d 449, 467 (D.C. Cir. 1998) (same). Indeed, the basic principle of administrative law bears repeating: an agency action is "arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider." *Motor Vehicle Mfrs' Ass'n*, 463 U.S. at 43.

More fundamentally, EPCA does not preempt, either expressly or by implication, California's authority to regulate GHGs. EPCA was enacted after the CAA waiver provisions were in place, and the evidence indicates that Congress designed EPCA to exist harmoniously with California's authority under the CAA, not to undermine it. EPCA itself provided that the Secretary must consider "the effect other Federal motor vehicle standards on fuel economy." Pub. L. No. 94-163, § 502(e)(3); *see also* 42 U.S.C. § 32902(f) (current codification of EPCA provided that NHTSA shall consider "the effect of other motor vehicles standards of the Government on fuel economy"). The Act makes clear that the "Federal standards" include "[e]missions standards under section 202 of the Clean Air Act, *and emissions standards applicable by reason of section 209(b) of such Act*." Pub. L. No. 94-163, § 502(d)(3)(D) (emphasis added). *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 346 (D. Vt. 2007) ("[I]n 1975 when EPCA was passed, Congress unequivocally stated that federal standards included EPA-approved California emissions standards."). *See also Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1173 (E.D. Cal. 2008) ("[T]he court concludes there is nothing in statute or in case law to support the proposition that a regulation promulgated by California and granted waiver of preemption under section 209 is anything other than a 'law of the Government' whose effect on fuel economy must be considered by NHTSA is setting fuel economy standards."). These two cases reject EPA's and NHTSA's argument on this point, and the agencies can cite no pertinent legal authority addressing the scope of EPCA preemption of California's waiver authority reaching a different result.

Moreover, the Supreme Court has also already considered and rejected the assertion that EPCA preempts regulation of GHGs. The Court made clear that environmental regulation of GHGs is

[170] 83 Fed. Reg. at 43234.

perfectly compatible with NHTSA's fuel economy standards: "that DOT sets mileage standards in no way licenses EPA to shirk its environmental responsibilities. EPA has been charged with protecting the public's "health" and "welfare," a statutory obligation wholly independent of DOT's mandate to promote energy efficiency. The two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency." *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007). The same logic applies to California's exercise of its independent authority granted under the CAA.

This reasoning is dispositive, but it is also worth noting that California's regulations only impact fuel economy as an incidental manner: the purpose, intent, and function of the regulations is to limit GHG emissions, not to regulate fuel economy. *See Green Mountain Chrysler*, 508 F. Supp. 2d at 351-353 (GHG emission standards "are not the equivalent of fuel economy standards because multiple approaches, with various levels of fuel economy, allow compliance with the standard. Manufacturers may take advantage of the regulation's credits for air conditioning under the California standards, or may use alternative fuels, or may use plug-in hybrid vehicles. Compliance with the regulation is not achieved solely by improving a fleet's fuel economy.")

As a factual matter, Tesla is also an illustration of how the Proposed Rule incorrectly overstates the relatedness of GHG regulations to fuel economy. Even though Tesla vehicles do not consume gasoline (and therefore the question of fuel economy as it relates to gasoline is inapt), the current regulations appropriately contemplate the degree to which upstream GHG emissions from the generation of electric fuel should be attributed to electric vehicles.[171] The agencies' inability to articulate a colorable argument here is not only a failure to understand the law, but also a failure of imagination: it is wholly inaccurate to claim, as the NPRM has, that California's LEV III GHG regulations necessarily relate to fuel economy because companies such as Tesla account for GHG reductions without affecting fuel economy in any way.

VIII. The Proposed SAFE Rule Misinterprets the Energy Policy and Conservation Act (EPCA)

Congress passed 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 intact, and NHTSA is required to consider it in its rulemaking.[172] *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."). However, the NPRM would increase fuel consumption by about half a million barrels per day, reduce the ability for the economy to absorb energy shocks, and increase energy security externalities.[173] As justification, NHTSA reasons that domestic oil market conditions have changed because "the U.S. now consumes a significantly smaller share of global oil production than it did in the 1970s" and that domestic production has grown in response to hydraulic fracturing and other technologies.[174] However, NHTSA's arguments misconstrue EPCA by attempting, in essence, to rewrite its statutory mandate. It

[171] See, e.g., 77 Fed. Reg. at 62816 (0 g/mi Compliance Treatment for EV/PHEV/FCVs with MYs 2022-2025 Per-Company Cap and Net Upstream GHG Emissions Compliance Beyond Cap).

[172] NHTSA attempts to justify this shift by the nonsensical step of now interpreting "conservation" to mean "to keep in a safe or sound state; especially, to avoid wasteful or destructive use of." 83 Fed. Reg. at 43,213 (quoting Merriam-Webster). However, 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).

[173] 83 Fed. Reg. at 42986, 43067, and 43105-06.

[174] 83 Fed. Reg. at 43213-14.

incorrectly reasons that EPCA is no longer relevant, departs from Congress's long-term objectives for EPCA, and impermissibly elevates the importance of other considerations.

Even if NHTSA believes that circumstances have changed, the agency may not attempt to rewrite its statutory mandate or second-guess clearly expressed Congressional policy choices. *See, e.g., Heckler v. Chaney*, 470 U.S. 821, 833 (1985) ("Congress did not set agencies free to disregard legislative direction in the statutory scheme that the agency administers."); *Southwestern Bell Corp. v. F.C.C.*, 43 F.3d 1515, 1519 (D.C. Cir. 1995) (Congress's mandates "are not open to change by the Commission[,]" and if it "believes those mandates inadequate to the task of [regulation] in light of changed circumstances, the Commission must take its case to Congress" instead of ignoring congressional directives). Here, NHTSA claims twice that "the world has changed" and concludes that energy conservation needs "in the context of the CAFE program[] ha[ve] also changed."[175] It admits that energy conservation was a "then-paramount" concern in 2012, but, with little support, argues that its "relative importance" has changed "a great deal" since then.[176] However, EPCA contains no "domestic shale oil production" exception, and it remains the law regardless of fluctuating oil prices and how NHTSA's current political leadership may desire that its statutory authorization would instead have been written. *See Michigan v. E.P.A.*, 135 S. Ct. 2699, 2708 (2015) ("*Chevron* . . . does not license interpretive gerrymanders under which an agency keeps parts of statutory context it likes while throwing away parts it does not.").

NHTSA incorrectly reasons that EPCA's importance has waned. The agency claims that domestic energy market conditions have changed but at the same time admits that those conditions—including growth in hydraulic fracturing—were present in 2012 when the agency increased fuel economy standards.[177] In other words, NHTSA spends a great deal of time discussing its perceptions of changing macroeconomic trends but fails to explain how *post*-2012 energy trends justify reduced fuel economy standards and a reversal of its prior policy.[178] Moreover, NHTSA's current oil price predictions do not account for future price volatility from the reassertion of Iranian sanctions, Venezuela's continued destabilization, or other market-disruptive events.[179]

Indeed, recent reports show that oil prices have been on the rise and will remain high.[180] The NPRM relies on Annual Energy Outlook ("AEO") numbers from 2017, which have since been updated.

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[175] 83 Fed. Reg. at 43216, 43226.
[176] 83 Fed. Reg. at 43226.
[177] See, 83 Fed. Reg. at 43213-15; Compare id. at 43214 ("U.S. domestic oil production began rising in 2009 with more cost-effective drilling and production technologies."). See also, U.S. Energy Info. Admin., Annual Energy Outlook 2012, 2 (2012) (forecasting "increased domestic crude oil . . . production, largely driven by rising production from tight oil and shale resources" and reduced reliance on imported oil).
[178] See, 83 Fed. Reg. at 43213-27. NHTSA also fails to justify the reversal of its long-standing position of including the environmental implications from climate emissions in its "need of the Nation to conserve energy" analysis. Compare, 83 Fed. Reg. at 43216 (reasoning that climate impacts "are small" and should not be emphasized in the analysis) *with* 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 63018-19 (Oct. 15, 2012) (Since 1988, "NHTSA has considered the benefits of reducing tailpipe carbon dioxide emissions in its fuel economy rulemakings [under] the statutory requirement to consider the nation's need to conserve energy").
[179] *See* Exec. Order No. 13,846, 83 Fed. Reg. 38939 (Aug. 6, 2018) (President Trump reimposing certain sanctions on Iran); U.S. Energy Info. Admin., Country Analysis Brief: Venezuela, 1 (2018) ("in the wake of political and economic instability in the country, crude oil production [in Venezuela] has dramatically decreased, reaching a multi-decades low in mid-2018"); International Energy Agency, *OMR: Tightening Up On The Way* (Sept. 13, 2018) ("Two reasons for the [price rise] are that Venezuela's production decline continues, and we are approaching 4 November when US sanctions against Iran's oil exports are implemented.").
[180] *See* International Energy Agency, *Oil Market Report: Twin Peaks* (Oct. 12, 2018) (oil prices rising steadily despite increased supply); Curran and Jamrisko, *What Oil at $100 a Barrel Would Mean for the Global*

Compare 83 Fed. Reg. 43069 (Table-II-30 Fuel Price Projections using 2017 AEO to predict $3.19/gal in 2035 and $3.46/gal in 2050) *with* U.S. Energy Info. Admin., Annual Energy Outlook 2018, *Table: Petroleum and Other Liquids Prices* (2018) (predicting $3.46/gal in 2035 and $3.67/gal in 2050). In fact, the 2018 AEO predicts that the motor gasoline price could be as high as $5.95/gal in 2050. U.S. Energy Info. Admin., Annual Energy Outlook 2018, 58 (2018). Thus, there is no reason to believe that oil price levels would not reach former 2012 levels.[181] The agency's decision to disregard the more recent 2018 numbers based on a "sensitivity analysis,"[182] cannot be justified in light of the unpredictability of oil market prices. U.S. Energy Info. Admin., Annual Energy Outlook 2018, 8 (2018) ("Energy market predictions are subject to inherent uncertainty because "events that shape energy markets and future developments in technologies, demographics, and resources cannot be foreseen[.]"). The new 2019 AEO will be released in January 2019, and by the time any final rule is promulgated, the agency will have relied on numbers that are several years old.

Moreover, EPCA is intended to guide long-term agency policy, not to be reinterpreted or downplayed during short-term periods of increased domestic oil production. *See Center for Auto Safety v. NHTSA*, 793 F.2d 1322, 1340 (D.C. Cir. 1986) ("It is axiomatic that Congress intended energy conservation to be a long term effort that would continue through temporary improvements in energy availability."); *Ophir v. City of Boston*, 647 F. Supp. 2d 86, 93 (D. Mass. 2009) ("Over the long term, the EPCA was designed to 'decrease dependence upon foreign imports, enhance national security, achieve the efficient utilization of scarce resources, and guarantee the availability of domestic energy supplies at prices consumers can afford.'") (quoting S. Rep. No. 94–516, at 117 (1975) (Conf. Rep.)). Achievement of these Congressional goals requires a steady increase in fuel economy standards over time; as Congress acknowledged, the need for "movement toward better mileage" to be "given a high enough priority year after year. . . lies at the heart of the need for this legislation." S. Rep. No. 94–179, at 8 (1975). Indeed, one of EPCA's goals was to "allow our Nation to once again supply a significant share of the energy needs of the free world." S. Rep. No. 94–26, at 56 (1975) (Letter from President Ford). Thus, Congress contemplated that EPCA's efficiency and conservation goals would remain in force so that the United States could supply, on an ongoing basis, a significant portion of the free world's energy needs. Similarly, Congress wanted EPCA's fuel economy standards to be mandatory because it recognized that over the long term, "market forces . . . may not be strong enough to bring about the necessary fuel conservation which a national energy policy demands." *Center for Auto Safety*, 793 F.2d at 1339 (quoting S. Rep. No. 94–179, at 9 (1975)). These indications of Congressional intent have counseled in favor of regular increases in fuel economy standards year after year, but the agencies' NPRM would halt that trend.

Furthermore, NHTSA's statutory analysis impermissibly elevates the importance of other considerations, including consumer choice and manufacturing costs, over EPCA's primary purpose of energy conservation. *See, e.g.*, 83 Fed. Reg. at 43,216-26 (discussing expected consumer and manufacturer responses to increased technology expenses). Although the statutory mandate to consider the "need of the Nation to conserve energy" has been interpreted to include a range of factors, Congress has not altered the basic requirement to set standards at the "maximum feasible" level. 49 U.S.C. § 32902(a). Ultimately, "[c]onsiderations such as pricing, consumer choice, safety for the consumer, and dealer profitability are not goals or objectives in and of themselves." *Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1177 (E.D. Cal. 2007). Thus, NHTSA's actions may not disregard EPCA's overall purpose of energy conservation. *See Center for Biological Diversity*, 538 F.3d at 1197 ("Whatever method it uses, NHTSA cannot set fuel economy standards

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Economy, Bloomberg (Sept. 30, 2018) ("Rising oil prices are prompting forecasts of a return to $100 a barrel for the first time since 2014[.]").

[181] *See* 77 Fed. Reg. 62715 (Oct. 15, 2012) (AEO 2012 predicting that oil prices would reach $4.09/gal in 2035 and $4.57/gal in 2050)

[182] See, 83 Fed. Reg. 43069 n. 219.

that are contrary to Congress's purpose in enacting the EPCA—energy conservation."); *Center for Auto Safety*, 793 F.2d at 1340 ("[I]t would clearly be impermissible for NHTSA to rely on consumer demand to such an extent that it ignored the overarching goal of fuel conservation.").

Finally, it is clear that in evaluating "technological feasibility," NHTSA should consider any technologies that are capable of being implemented in the relevant model year(s) under consideration, and not limit its consideration to technologies which are currently in commercial use. In evaluating another portion of EPCA, the D.C. Circuit made clear 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.[183] 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."[184] NHTSA appropriately acknowledges this standard in the proposal.[185] Indeed, courts have described 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"). Thus, NHTSA's evaluation of technological feasibility should naturally include an evaluation of advanced or cutting-edge vehicle technologies.

Conclusion

Tesla urges the agencies to consider the significant new developments in the electrification of the light-duty vehicle sector. These new advances support the implementation of stronger LDV Standards that will lower our dependence on foreign energy sources, reduce dangerous carbon pollution, and provide health-related benefits from significant reductions in tailpipe air pollution. And, as Tesla exemplifies, continual improvement in the stringency of the standards will drive significant new, long-term investment in domestic manufacturing, the deployment of critical infrastructure, and the creation of jobs.

The sizeable technological, manufacturing, and consumer acceptance developments described in these comments demonstrate that EV technology is at an inflection point. NHTSA's and EPA's NPRM threatens to create regulatory uncertainty precisely at the time when auto manufacturers most need predictability, certainty, and clarity to continue to make substantial domestic research and product development investments in the electrification of the nation's vehicle fleet.

As described above and demonstrated by Tesla's exponential growth, there is significant consumer demand for EVs, and EVs are providing major contributions to the national economy. Further, Tesla vehicles demonstrate that significant advances in vehicle safety will accompany the rapid adoption of EVs. Accordingly, at a bare minimum the current LDV Standards ought to be retained, and NHTSA and EPA should give significant consideration to increasing the stringency of those standards.

[183] 77 Fed. Reg. 62624, 62668 (Oct. 15, 2012).
[184] 73 Fed. Reg. 24352, 24363 (May 2, 2008).
[185] 83 Fed. Reg. at 43208.

Respectfully submitted,

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