Comments of the National Coalition for Advanced Transportation

On the U.S. Environmental Protection Agency's and National Highway Traffic Safety Administration's Notice of Proposed Rulemaking: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks

83 Fed. Reg. 42986

Docket Nos. NHTSA-2018-0067, EPA-HQ-OAR-2018-0283, NHTSA-2017-0069

October 26, 2018

Submitted via Regulations.gov

I. INTRODUCTION AND EXECUTIVE SUMMARY

The National Coalition for Advanced Transportation (NCAT or Coalition) submits these comments in response to the Environmental Protection Agency's (EPA) and National Highway Traffic Safety Administration's (NHTSA) Notice of Proposed Rulemaking entitled "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks," Docket Nos. NHTSA-2018-0067 and EPA-HQ-OAR-2018-0283, 83 Fed. Reg. 42986 (August 24, 2018) (NPRM). In addition, NCAT submits these comments on the Draft Environmental Impact Statement (DEIS) for the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021–2026 Passenger Cars and Light Trucks, Docket No. NHTSA-2017-0069.

NCAT is a coalition of companies and non-profit organizations that support electric vehicle (EV) and other advanced transportation technologies and related infrastructure.[1] NCAT's members include business leaders in auto manufacturing; electricity generation, transmission, storage and distribution; and manufacturing, deployment and operation of electric vehicle supply equipment—as well as non-profit organizations that advocate for EV owners and consumers and for pragmatic policy solutions to energy and environmental challenges.

Electric and other advanced vehicles and related technologies and infrastructure provide major economic and energy security benefits, and U.S. leadership in this area is critical to our economic health, global competitiveness and environmental quality. NCAT supports government initiatives and regulatory programs that ensure that these critical investments continue and electric and that other clean vehicle technologies and infrastructure can compete in the marketplace. The Coalition recognizes the critical role that States play in adopting and implementing vehicle standards that support advanced technologies, and supports an approach

[1] These comments represent an integrated package that reconciles individual member perspectives that may differ on specific issues; accordingly, no particular position should be attributed to any individual NCAT member.

that provides regulatory certainty and stable, long-term signals to guide investment by many different stakeholders.

NCAT has serious concerns regarding the NPRM, which would freeze vehicle standards at 2020 levels through 2026 and seeks to preempt California and other states' greenhouse gas (GHG) and zero emission vehicle (ZEV) standards. NCAT strongly opposes any action that would undermine state regulatory authority, which is critical to protecting public health and spurring technology innovation. With regard to the federal corporate average fuel economy (CAFE) and Clean Air Act (CAA) greenhouse gas (GHG) standards, the proposal is based on flawed modeling and analysis and contrary to law. The rulemaking record reveals that NHTSA was almost solely responsible for the analysis on which the proposal is based, that EPA's expert career staff and managers raised fundamental objections to this analysis, and that these concerns were not addressed. The resulting proposal would have serious adverse effects on U.S. global competitiveness and jobs, energy security, public health and the environment, and would disrupt long-term investment signals on which many U.S. companies, including NCAT's members, rely.

NCAT urges the agencies to adopt an alternative approach—one that would provide a "win-win" for the American public, auto manufacturers, public health and the environment. NCAT reiterates its strong support for an "Advanced Technologies Compliance Flexibilities" approach. This option would preserve state authority and maintain the top-line targets of the existing GHG standards, while providing manufacturers with additional compliance flexibilities focused on promoting the development and deployment of electric and other advanced vehicle technologies. CAFE standards would be harmonized accordingly, consistent with the Energy Policy and Conservation Act's (EPCA) distinct legal requirements. Such an approach—which is within the scope of the agencies' proposal—would address manufacturers' near-term compliance concerns, largely preserve the overall benefits of the program, and prepare the foundation for further progress in fuel savings and GHG reductions in the years beyond 2025.

Given the volume and complexity of the NPRM, the DEIS, and the supporting record, and the agencies' refusal of NCAT's and other stakeholders' requests to meaningfully extend the comment period, these comments focus on the most significant issues in the NPRM. NCAT's key comments, set forth in greater detail below, are as follows:

1. The agencies should adopt the Advanced Technologies Compliance Flexibility Approach, as described above. (Section II)

2. The NPRM's negative statements regarding EVs—specifically with regard to costs, consumer acceptance, and issues related to charging infrastructure and grid management—are misplaced and should be corrected. The demand for EVs is growing dramatically. Manufacturers are investing tens of billions of dollars and offering dozens of new vehicle models, with significantly expanded range, across vehicle types. EV costs are falling rapidly and many analysts project that they will reach parity with conventional vehicle cost by 2025. Consumer acceptance and demand are growing accordingly. In addition, utilities and others are making substantial investments in charging infrastructure and electric grid upgrades, and increased EV usage will substantially benefit grid operation through increased use of fixed assets, ultimately benefitting all utility customers. (Section III)

3. The modeling and analysis upon which the NPRM is based are fundamentally flawed in several respects. These flaws include fleet turnover modeling (including the new vehicle purchase model and the scrappage model) and an inflated estimate of the rebound effect, each of which results in significant overstatement of the vehicle miles traveled (VMT) reductions resulting from the proposal. This in turn results in substantial overstatement of the potential safety benefits of the proposal and underestimation of the proposal's costs with regard to fuel consumption, GHG and non-GHG pollutant emissions, and other impacts. The agencies' technology cost estimates—which are over twice what the same agencies estimated just two years ago and which drive much of the agencies' analysis of fleet turnover, consumer benefits, consumer acceptance, and related issues—are likewise fundamentally flawed. (Section IV)

4. NHTSA's proposed CAFE standards are not "maximum feasible" as required by EPCA and are otherwise unsupported by the rulemaking record and arbitrary and capricious. (Section V)

5. EPA's proposed GHG standards do not comply with CAA Section 202(a) and are otherwise unsupported by the rulemaking record and arbitrary and capricious. (Section VI)

6. EPCA does not preempt California's GHG or ZEV standards. (Section VII)

7. EPA lacks statutory authority to rescind the CAA waiver of preemption for California's GHG and ZEV standards. In any event, EPA's proposed waiver rescission, and its separate argument that states other than California are precluded from adopting California's GHG or ZEV standards under CAA Section 177, are contrary to the statute and otherwise unsupported by the record and arbitrary and capricious. (Section VIII)

8. NHTSA's DEIS does not comply with the requirements of the National Environmental Policy Act (NEPA). (Section IX)

9. Under the Regulatory Flexibility Act, the agencies must prepare a regulatory flexibility analysis and convene a small business review panel to assess the impacts of the proposed rule on small businesses. (Section X)

II. THE AGENCIES SHOULD ADOPT THE ADVANCED TECHNOLOGIES COMPLIANCE FLEXIBILITY OPTION

Before turning to NCAT's concerns with the proposed federal standards (discussed in Sections III-VI and IX and X), this Section outlines NCAT's recommended approach to achieve a win-win outcome in the final standards. On May 2, 2018, NCAT submitted a letter to the agencies requesting that they propose an "Advanced Technologies Compliance Flexibility Option," which would maintain the top-line targets in the current model year (MY) 2022-2025 GHG standards but provide manufacturers with certain additional compliance flexibilities. Under this approach, CAFE standards would be calibrated accordingly to maintain comparably robust targets and incorporate similar flexibilities.

The flexibilities NCAT has supported, summarized below, would include a combination of the following elements:

1. continuing to attribute zero GHG emissions to EVs, plug-in hybrid electric vehicles (PHEVs) when operating on electricity, and hydrogen fuel cell vehicles (FCVs);

2. extending and potentially restructuring credit multipliers for EVs, PHEVs, and FCVs;

3. reforming the current off-cycle credit recognition process while strengthening the integrity of the program; and

4. maintaining existing credits for reduced air conditioning refrigerant leakage.

This package of reforms would provide more near-term flexibility in complying with the current GHG and CAFE targets and lower compliance costs. At the same time, it would continue appropriate incentives to further advance and deploy technologies needed to reduce GHG emissions and increase fuel economy. This approach would also strengthen the domestic manufacturing base and promote the infrastructure investment necessary to support continued emission reductions and increased fuel efficiency in the years to come.

Several other stakeholder groups made similar proposals. On May 17, 2018, several trade associations representing automotive suppliers (Motor & Equipment Manufacturers Association, Manufacturers of Emission Controls Association, Advanced Engine Systems Institute, and Emissions Control Technology Association) submitted a letter requesting that the agencies consider a similar option. On May 22, 2018, the Alliance of Automobile Manufacturers, the Association of Global Automakers, the Edison Electric Institute, the American Public Power Association, and the National Rural Electric Cooperatives Association joined together in submitting a similar proposal (Auto-Utility Proposal). The Auto-Utility Proposal called for "increases in the stringency of fuel economy and GHG standards year-over-year that also incorporate policies from California and other ZEV states to ensure that 'One National Program' is maintained"—along with "extend[ing] and improv[ing] the current regulatory mechanisms that provide critical support for EVs and advanced vehicles."

The agencies did not formally propose such an option and did not provide detailed analysis of the potential impacts of this approach. However, the NPRM includes discussion of most of the requisite elements of NCAT's proposed approach. It discusses and analyzes a range of overall stringencies, including maintaining stringency at the level of the current GHG standards and the augural CAFE standards for MY 2022-2025. Further, the NPRM requests comment on technology-based credits, including EV and off-cycle credits, and analyzes the potential impacts of extending and expanding such credits on overall program performance. Accordingly, NCAT's proposed Advanced Technologies Compliance Flexibilities Option remains within the scope of the proposal, and the agencies could finalize this Option based on

the proposal.[2] NCAT requests that the agencies further consider, analyze, and finalize this Option—as refined in our comments below.

A. Baseline Program—Maintain State Authority and Top-Line Targets for GHG Standards

In reiterating and refining our request that the agencies adopt an Advanced Technologies Compliance Flexibilities Option, NCAT underscores that maintenance of state authority and rigorous top-line GHG targets are critical "baseline" elements of this Option. Because of the tradeoffs between flexibilities and overall stringency, expansion of compliance flexibilities in the absence of any requirement to improve GHG reductions or fuel economy (as under the agencies' preferred option) could result in an effective deterioration of existing GHG and fuel economy performance, as well as little or no effective support for advanced vehicle technology development or deployment.

B. Extend Attribution of Zero Emissions to Electric Vehicles

Under the current MY 2017-2025 standards, EPA established a two-phase mechanism for addressing whether and how to attribute upstream emissions to EVs, PHEVs and FCVs for purposes of determining compliance with the GHG standards. For the first phase (MY 2017-2021), EPA set the value at 0 g/mile for EVs, PHEVs (for the electricity usage portion) and FCVs, with no limit on the number of vehicles that could be counted as 0 g/mile for tailpipe emissions accounting purposes.

For the second phase (MY 2022-2025), EPA set a per-company cumulative sales cap on the number of EV/PHEV/FCVs that could be counted as 0 g/mile for tailpipe CO_2 emissions compliance. Manufacturers that sell 300,000 or more EV/PHEV/FCVs combined in MY 2019-2021 can count up to 600,000 EV/PHEV/FCVs combined as 0 g/mile for the MY 2022-2025 standards. Manufacturers that sell fewer than 300,000 EV/PHEV/FCVs combined in MY 2019-2021 can only count up to 200,000 EV/PHEV/FCVs combined as 0 g/mile for the MY 2022-2025 standards. Beginning in MY 2022, the compliance values for EVs, FCVs, and the electric portion of PHEVs above the individual automaker cumulative production caps must be based on net upstream accounting of GHG emissions for fuel production and distribution. EPA adopted a specific methodology to calculate the net upstream GHG emissions compliance value for EVs (and the electric portion of PHEVs), based in part on projected national average GHG emissions for electricity generation.

Provided EPA maintains the top-line GHG targets at their current levels, EPA should amend the MY 2022-2025 standards to extend treatment of EVs, PHEVs (for the electricity usage portion), and FCVs as having 0 g/mi emissions for purposes of the GHG program, without any per manufacturer production cap or other limitation. This option should continue to vary the electric proportion of PHEVs' expected usage based on the all-electric range of the relevant vehicle model.

[2] In Sections III, IV and V, we argue that the agencies should correct certain fundamental errors in their analysis and provide an additional opportunity for comment on supplemental proposal or notice of data availability. Even if the agencies decline to do so, however, the option NCAT supports is within the scope of the proposal.

C. Extend and Reform Advanced Vehicle Technology Credits

In addition, provided EPA maintains the top-line GHG targets, the agency should extend and reform the credit multipliers available for EVs, PHEVs, and FCVs available under the existing GHG regulations for MY 2017-2021.

Under the current regulations, each EV/PHEV/FCV sold in MY 2017-2021 is counted as more than one vehicle for purposes of determining credits for compliance with the GHG standards. EPA adopted the following multipliers, set forth at 40 C.F.R. § 86.1866–12:

Vehicle Types	Model Year(s)	Multiplier
EVs, FCVs	2017 – 2019	2.0
	2020	1.75
	2021	1.5
PHEVs, dedicated and dual fuel CNG vehicles	2017 – 2019	1.6
	2020	1.45
	2021	1.3

EPA justified this approach as necessary to promote commercialization of these advanced technologies and emphasized that advanced technologies would be necessary to meet future GHG standards as stringency increased.

NCAT supports extension of the credit multipliers at 2021 levels, or possibly higher, through MY 2025. Some portion of the additional credits could be subject to eligibility criteria such as those discussed below, the agencies should consider delayed phase down of the credits during the MY 2022-2025 period, and appropriate multiplier levels should be determined based on further analysis of the impacts of any eligibility criteria and phase down. If appropriately designed, extension and enhancement of the credit multipliers would reward manufacturers who invest in zero emissions technologies now, thus both ensuring lower emissions in future model years (by accelerating the introduction of advanced technologies at scale) and lowering manufacturer compliance burdens.

1. Enhanced Credit for Vehicles Beyond State ZEV Compliance

Manufacturers should receive enhanced credit to the extent their sales of qualifying vehicles exceed ZEV program requirements in California and other Section 177 states. These ZEV programs require manufacturers to submit credits demonstrating achievement of a certain level of sales of qualifying vehicles in the ZEV states. For purposes of the federal GHG program, EPA should provide enhanced credit for EV, PHEV and FCV sales that go above and beyond what is already required for compliance with the California and other states' ZEV mandates. This would have the effect of making the federal program incentive "additional" to that provided by the state program—providing greater and more targeted support for advanced technology deployment, both in the ZEV states and beyond them.

2. Enhanced Crediting Based on All-Electric Range

In addition, EPA should provide larger credits for EVs, PHEVs, and FCVs that demonstrate longer all-electric range and/or greater energy efficiency based on EPA range per kWh or BTU. This approach incentivizes more rapid nationwide deployment of longer-range zero and near-zero emission vehicles, and would provide support for a broader market transition to such vehicles.

3. Enhanced Crediting for High-Mileage, Clean On-Demand and Fleet Vehicles

In addition, upon manufacturer election for qualifying vehicle fleets, EPA could provide enhanced credit multipliers for EV, PHEV and FCV sales of demonstrated high-mileage vehicles used in ride-hailing, ride-sharing or other "on-demand" transportation applications, and/or for use in government or corporate fleets. Such vehicles are likely to displace use of other vehicles at the margins; to the extent they use zero-emission advanced technologies, they would achieve disproportionate reduction in system-wide emissions. In addition, incentivizing use of advanced technology vehicles for fleets, ride-sharing and on-demand transportation could provide a bridge for broader commercial deployment of such technologies. Implementation of enhanced credits for such vehicles would, of course, require a rigorous system of verification and enforcement.

D. Off-Cycle Credits

Several manufacturers have expressed concern with challenges and transaction costs associated with the existing processes for issuing off-cycle credits. In the NPRM, EPA requests comment on a number of potential reforms. NCAT is supportive of appropriate reforms if adopted as part of the overall Advanced Technologies Compliance Flexibility approached proposed here, including maintaining the top-line GHG targets, and if they are adopted and implemented in a manner that does not compromise the GHG benefits of the program.

If those conditions can be met, the agencies should adopt a streamlined process for adding new technologies to the menu of pre-approved technologies for off-cycle credits, such as EPA's proposal in the NPRM to add technologies to the menu without having to go through notice and comment based on one or more manufacturer applications to approve a technology. In addition, the manufacturer testing processes required to demonstrate greater credit than available from the pre-approved list should be reviewed to shorten the time, effort and cost required to establish defensible credits. The program should maintain the principle that the amount of credit available should reflect the degree of certainty provided by the available data. In addition, increases to the cap on off-cycle credit, such as those proposed by EPA, may be appropriate.

Further, consistent with such program enhancements, the agencies should improve the transparency and integrity of this mechanism. Such changes could include providing transparent reporting of off-cycle credits approved by vehicle make and model; providing further clarification of principles and data requirements governing EPA's evaluation of off-cycle credit petitions; and establishing transparent mechanisms for ex-post evaluation of emissions and fuel economy benefits of off-cycle credits, and mechanisms to correct any over- or underestimation

of credits, to help ensure the long-term integrity of this mechanism and the overall program (i.e., to ensure that the emission reduction and fuel efficiency benefits that are the basis for off-cycle credits are real and verifiable).

E. Air Conditioning Refrigerant Leakage Credits

The agencies have proposed to discontinue credits for reduced air conditioning refrigerants leakage under the existing regulations and to reduce the stringency of the standards accordingly. NCAT supports extending the existing credits within the context of the overall Advanced Technologies Compliance Flexibility Option.

F. Consistent and Equally Rigorous CAFE Standards

Several of the compliance flexibility mechanisms discussed above are primarily relevant to EPA's GHG standards. The potential changes to the off-cycle credit mechanism are applicable to both programs. Attribution of emissions to EVs, PHEVs, and FCVs applies only to the GHG standards. With regard to credit multipliers, NHTSA has previously taken the position that it lacks authority to apply multipliers for EVs or other advanced technologies because EPCA separately specifies how such vehicles are to be counted for purposes of fuel economy. One approach to address this issue would be to calibrate CAFE targets for MY 2022-2025 to be equally stringent overall, such that they are achievable by the same manufacturer fleets that could meet the GHG standards under the Advanced Technologies Compliance Flexibilities Option described above. A further alternative would be to differentiate the CAFE and EPA GHG standards such that the GHG standards provide the greater stringency while offering the additional flexibility noted here.

III. KEY ISSUES FOR ELECTRIC VEHICLES AND INFRASTRUCTURE

NCAT members are actively involved in the development and deployment of advanced transportation vehicles and EV charging infrastructure. The Coalition's membership includes EV manufacturers—Tesla and Workhorse Group Inc.—that are subject to the MY 2021-2026 standards, an EV charging network provider, and utilities across the U.S. that are planning for and investing in the deployment of EV charging electric infrastructure, as well as an organization representing consumers that own or want to purchase these clean vehicles. NCAT members collectively have invested, or are in the process of investing, billions of dollars in these activities.

EVs and other advanced technology vehicles and supporting infrastructure play a critical role in supporting U.S. global competitiveness, economic growth, energy security, and cost-effective protection of public health and environmental quality. To remain a leader in the global automotive market, the U.S. must continue to support policies that encourage adoption of electric and other advanced technology vehicles and related infrastructure to serve the needs of American consumers. Since the MY 2021-2025 existing/augural standards were adopted in 2012, the U.S. EV market has grown and is expected to continue substantial growth into the future. EV battery costs have continued to decline, reducing the cost of EVs relative to other vehicles. Charging infrastructure providers continue to expand the charging networks across the country. These developments contribute to making reductions in vehicle GHG emission and improvements in fuel economy even more achievable.

Despite these advances, the NPRM and Preliminary Regulatory Impact Analysis (PRIA) evidence a consistent negative view of EVs, especially with regard to technology costs and consumer acceptance and interactions between EVs, charging infrastructure, and operation of the electric grid. In general, the agencies fail to recognize the dynamic growth of the EV market, the benefits of increased EV deployment, declining EV costs, and the degree to which auto manufacturers, consumers, and global markets are embracing EVs as the transportation technology of both today and the future. NCAT provides the following information regarding EVs and electric infrastructure to correct the record, and asks the agencies to adjust their analysis accordingly.

A. The EV Market Has Grown and Will Continue to Grow

1. EV Demand and Sales Are Growing Dramatically

The PRIA downplays the role of EVs and states that EVs are only a small percentage of the light-duty fleet. PRIA at 366. However, sales of EVs in the U.S. have continued to grow at a high rate, and demand for EVs is projected to increase substantially over the MY 2021-2026 period and more so into the future. As of October 2018, one million plug-in electric cars have been sold cumulatively in the U.S.[3] As of the end of September 2018, over 234,000 electric vehicles have been sold during this calendar year, an amount which already exceeds total U.S. EV sales of approximately 200,000 in 2017.[4] EV sales are up from 18,000 vehicles in 2011, constituting a year-over-year growth rate of 49% from 2011 to 2017.[5] As a recent example, in the third quarter of 2018, Tesla's Model 3 was the best-selling car in the US in terms of revenue and the 5th best-selling car in terms of volume.[6] 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."[7]

Projected U.S. sales of EVs vary widely, but virtually all market analysts predict substantial increases in consumer demand. The U.S. Energy Information Administration (EIA) projects that sales of battery electric vehicles and PHEVs will reach 1.1 million in 2025.[8] Under the EIA's estimates, combined sales of new electric, PHEVs, and hybrid vehicles grow in market

---

[3] Mark Kane, "Plug-In Electric Cars Sales In U.S. Surpass 1 Million," https://insideevs.com/1-million-electric-cars-sold-us/ (Oct. 6, 2018); Paul Ruiz, "U.S. Reaches 1 Million Electric Vehicle Sales" (Oct. 11, 2018), http://energyfuse.org/u-s-reaches-1-million-electric-vehicle-sales/.

[4] Loveday, "September 2018 Plug-In Electric Vehicle Sales Report Card," https://insideevs.com/september-2018-plug-in-electric-vehicle-sales-report-card/ (Oct. 5, 2018).

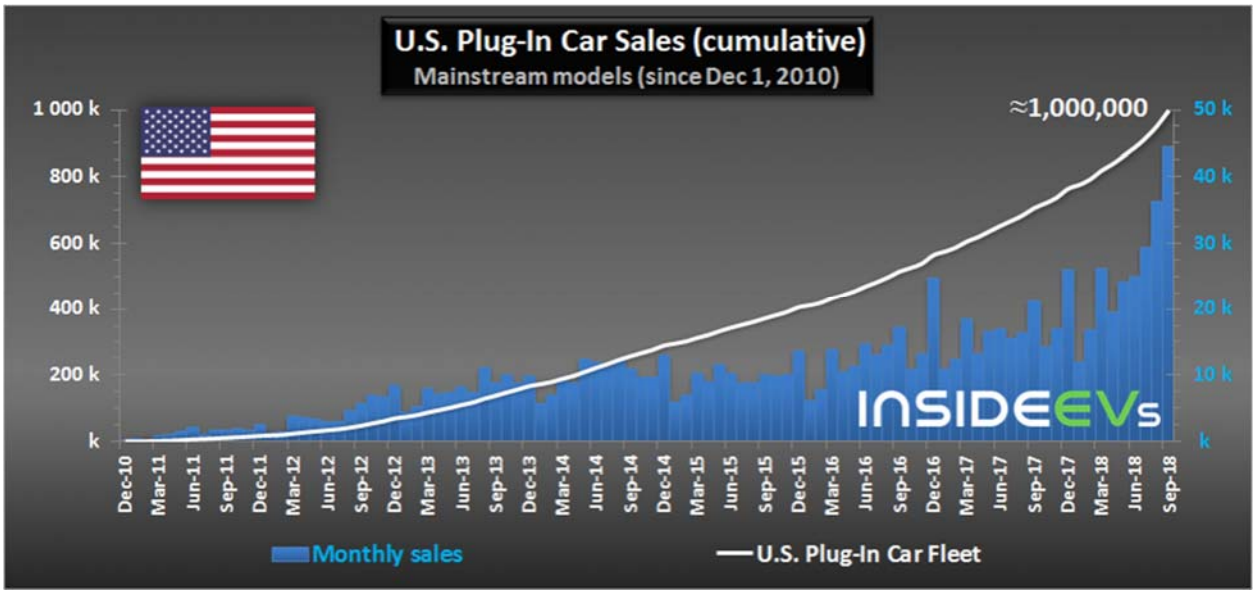
[5] Argonne National Laboratory, Impacts of Electrification of Light-Duty Vehicles in the U.S., 2010-2017 (Jan. 2018) at 3, *available at* https://publications.anl.gov/anlpubs/2018/01/141595.pdf.

[6] Tesla, "Tesla Third Quarter 2018 Update" (Oct. 2018), *available at* http://ir.tesla.com/static-files/725970e6-eda5-47ab-96e1-422d4045f799.

[7] Bloomberg, "Tesla's Model 3 Is Becoming One of America's Best-Selling Sedans" (Oct. 3, 2018), https://www.bloomberg.com/news/articles/2018-10-03/tesla-s-model-3-is-becoming-one-of-america-s-best-selling-sedans.

[8] U.S. EIA, "Annual Energy Outlook 2018 with projections to 2050" (Feb. 6, 2018) at 116, *available at* https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.

share from 4% in 2017 to 19% in 2050 in the EIA's Reference case.[9] A recent study by the Edison Electric Institute and Institute for Electric Innovation projects that in the U.S. annual sales of plug-in electric vehicles will exceed 1.2 million vehicles in 2025 and the total number of plug-in electric vehicles on the road will reach 7 million by 2025.[10] A July 2017 Bloomberg New Energy Finance global study "expect[s] an inflection point in adoption between 2025 and 2030, as EVs become economical on an unsubsidized total cost of ownership basis across mass-market vehicle classes."[11] A study by Energy Innovation projects rapid growth in the EV market share with EVs projected to make up 65 percent of new U.S. light-duty vehicle sales by 2050.[12]



Source: InsideEVs[13]

2. Manufacturers Are Investing and View EVs As the Future

Several major global manufacturers have announced plans to scale up their offerings of EVs significantly in the coming years, including vehicles across a variety of price levels and with substantially increased range.

---

[9] *Id.* at 114.

[10] Adam Cooper & Kellen Schefter, Edison Electric Institute and the Institute for Electric Innovation, "Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required" (June 2017) at 1, http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20PEV%20Sales%20and%20Infrastructure%20thru%202025_FINAL%20(2).pdf.

[11] Bloomberg New Energy Finance, "Electric Vehicle Outlook 2017 – Executive Summary" (July 2017) at 2, *available at* https://data.bloomberglp.com/bnef/sites/14/2017/07/BNEF_EVO_2017_ExecutiveSummary.pdf.

[12] Jeffery Rissman, Energy Innovation, "The Future of Electric Vehicles in the U.S." (Sept. 2017) at 3, *available at* http://energyinnovation.org/wp-content/uploads/2017/09/Future-of-EVs-Research-Note_FINAL.pdf?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=politics.

[13] Kane, "Plug-In Electric Cars Sales In U.S. Surpass 1 Million" (Oct. 6, 2018), https://insideevs.com/1-million-electric-cars-sold-us/.

- Earlier this year Ford announced its plan to spend $11 billion bringing 40 electrified vehicles to market by 2022, which is an increase of $4.5 billion as compared to Ford's statements in late 2015 regarding the amount the company would invest through the end of the decade.[14]

- Fiat-Chrysler plans to launch over 30 EVs and hybrids by 2022.[15]

- Toyota plans by around 2025 to offer every model in the Toyota and Lexus line-up either as a dedicated electrified model or have an electrified option. "By around 2030, Toyota aims to have sales of more than 5.5 million electrified vehicles, including more than 1 million zero-emission vehicles."[16]

- Mercedes Benz plans to have an electric or hybrid version for virtually all of their cars by 2022 (over 50 model variants) and to make $1 billion in investments in its Alabama factory as a result.[17]

- In October 2017, GM announced that in the next 18 months it will introduce two new all-electric vehicles, which will be the first of at least 20 new all-electric vehicles that will launch by 2023. GM's Executive Vice President of Product Development, Purchasing and Supply Chain stated in connection with this announcement that "General Motors believes in an all-electric future."[18]

- Volkswagen has stated its intention to introduce two more all-electric vehicles to the U.S., in addition to several others planned for the U.S. market in the next few years,[19] and to build electric versions of all 300 of its brands' models. Volkswagen intends to spend 20 billion euros ($24 billion) by 2030 to roll out electric versions of all 300 models, and spend another 50 billion euros ($60 billion) to buy the batteries for these vehicles.[20]

---

[14] Keith Naughton et al., "Ford Goes 'All In' on Electric Cars" (Jan. 14, 2018), https://www.bloomberg.com/news/articles/2018-01-14/ford-doubling-electric-vehicle-spending-to-11-billion-by-2022.

[15] Jon Fingas, "Fiat Chrysler will launch over 30 EVs and hybrids by 2022" (June 2, 2018), https://www.engadget.com/2018/06/02/fiat-chrysler-launching-over-30-electric-and-hybrid-cars-by-2022/.

[16] Toyota, "Toyota Aims for Sales of More Than 5.5 Million Electrified Vehicles Including 1 Million Zero-Emission Vehicles per Year by 2030" (Dec. 18, 2017), https://newsroom.toyota.co.jp/en/corporate/20353243.html.

[17] Stephen Edelstein, "Mercedes-Benz Investing $1 Billion in Alabama Plant Upgrades to Build Electric SUVs" (Sept. 22, 2017), http://www.thedrive.com/tech/14554/mercedes-benz-investing-1-billion-in-alabama-plant-upgrades-to-build-electric-suvs?iid=sr-link8.

[18] GM Corporate Newsroom, "GM Outlines All-Electric Path to Zero Emissions" (Oct. 2, 2017), http://media.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2017/oct/1002-electric.html. *See also* Bill Vlasic & Neal E. Boudette, "G.M. and Ford Lay Out Plans to Expand Electric Models," *New York Times* (Oct. 2, 2017), https://www.nytimes.com/2017/10/02/business/general-motors-electric-cars.html.

[19] Fred Lambert, "VW confirms two new upcoming electric cars for US market: I.D. Lounge and I.D. AEROe" (June 26, 2017), https://electrek.co/2017/06/26/vw-electric-cars-i-d-lounge-and-i-d-aeroe/.

[20] Christoph Rauwald, "VW to Build Electric Versions of All 300 Models by 2030" (Sept. 11, 2017), https://www.bloomberg.com/amp/news/articles/2017-09-11/vw-ceo-vows-to-offer-electric-version-of-all-300-models-by-2030.

- Volvo recently announced that it will incorporate electric technology into *all* its vehicle model offerings by 2019.[21]

- BMW stated that 12 all-electric cars and 13 hybrids will be on the market by 2025, and Jaguar Land Rover has said that its entire fleet of new vehicles will be electric or hybrid-electric starting in 2020.[22]

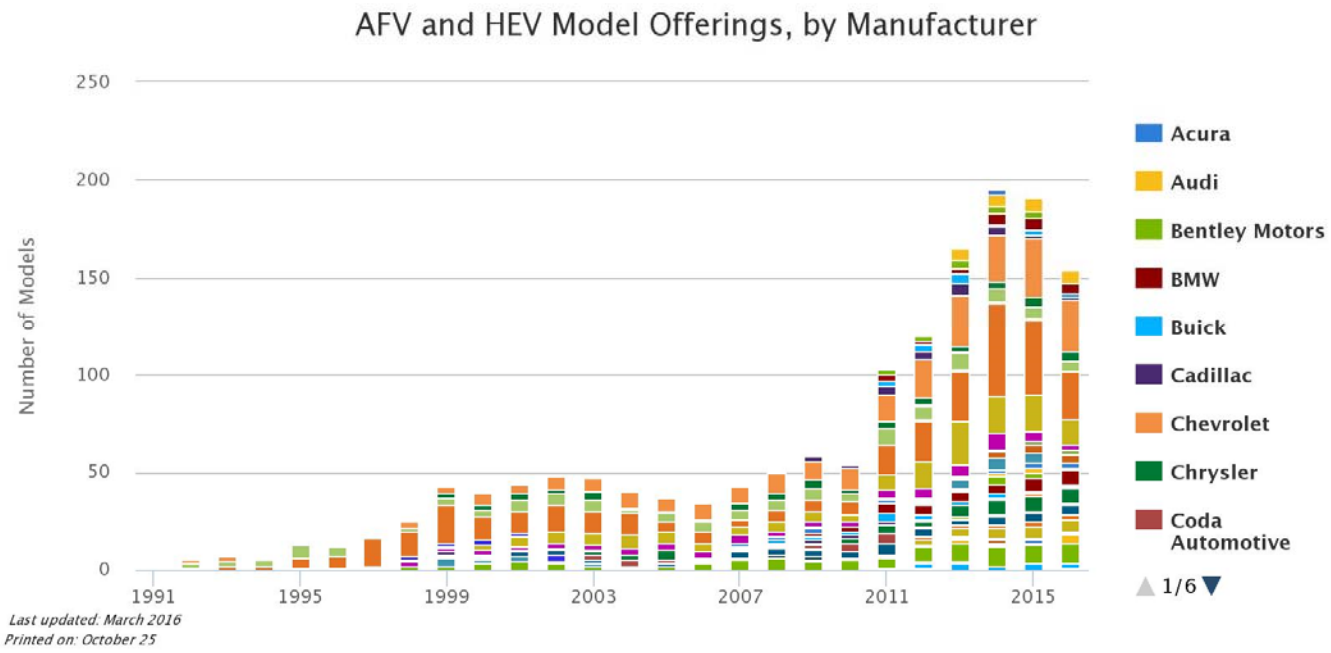
3. Expanding Number, Type and Range of Vehicles

Manufacturers are offering more types of EVs, with increasing range, making EVs increasingly attractive to consumers. In 2018, there are 23 electric vehicle options and 34 plug-in hybrid electric vehicle options available according to FuelEconomy.gov.[23] The U.S. Department of Energy's (DOE) Alternative Fuels Data Center also compiles the makes and models of all alternative fuel vehicles. This data from the Alternative Fuels Data Center was last updated in March 2016. Since that time, manufacturers have continued to expand the number of makes and models of alternative fueled vehicles on the market.

[21] Jack Ewing, "Volvo, Betting on Electric, Moves to Phase Out Conventional Engines," *NY Times* (July 5, 2017), https://www.nytimes.com/2017/07/05/business/energy-environment/volvo-hybrid-electric-car.html.

[22] Russ Mitchell, "BMW plans 25 all-electric and hybrid vehicles by 2025; Jaguar shows off electric E-type" (Sept. 7, 2017), http://www.latimes.com/business/autos/la-fi-hy-bmw-jaguar-ev-20170907-story.html. *See also* Adam Vaughan, "Jaguar Land Rover to make only electric or hybrid cars from 2020" (Sept. 7, 2017), https://www.theguardian.com/business/2017/sep/07/jaguar-land-rover-electric-hybrid-cars-2020.

[23] U.S. DOE & EPA, "Hybrids, Diesels, and Alternative Fuel Cars," https://www.fueleconomy.gov/feg/alternatives.shtml (last visited Oct. 24, 2018). For a few vehicle models there are several different options listed for a particular model.



Source: Alternative Fuels Data Center[24]

Most new battery electric vehicles have ranges of about 100 miles on a fully charged battery, and an increasing number of models have ranges over 200 miles. Ninety percent of all household vehicle trips in the U.S. cover less than 100 miles, according to the U.S. Department of Transportation.[25] A recent report by McKinsey & Company found a significant increase in the estimated range for EVs since 2013: "For example, base models of the Nissan Leaf and Tesla Model S grew from 75 and 208 miles per charge in 2013 to about 107 and up to 249 miles in 2017, respectively."[26]

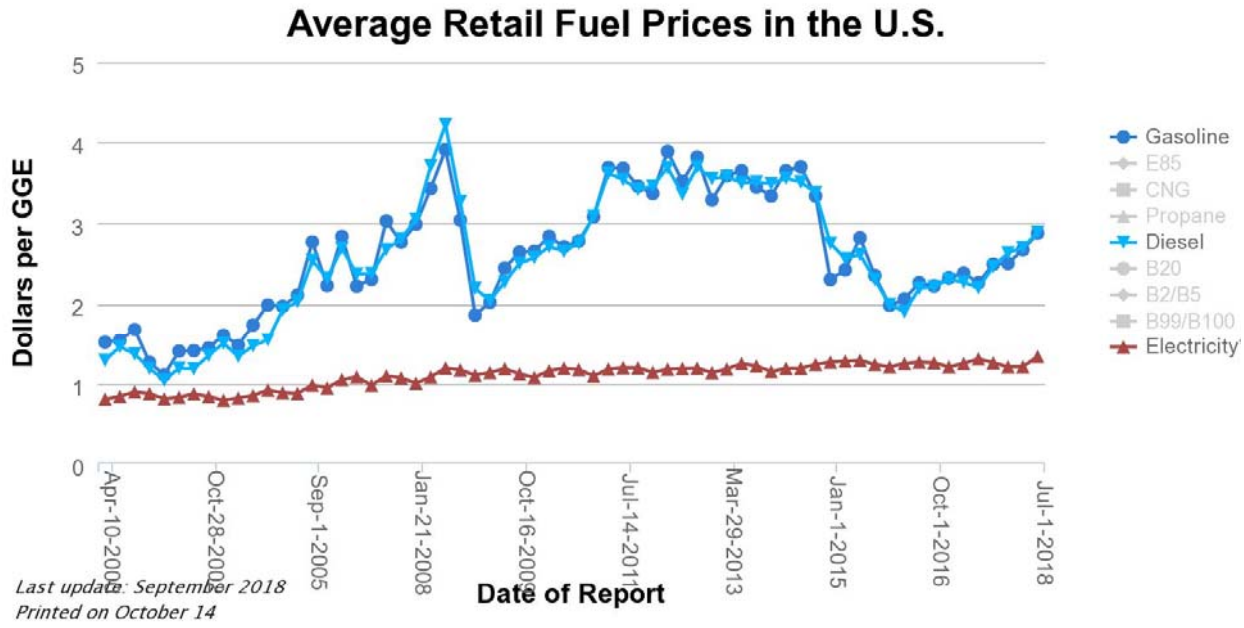
4. Costs Are Declining Rapidly

Electric and other advanced technology vehicles save consumers money relative to conventional vehicles—putting more money in the pockets of families and individuals that choose such vehicles. Electricity is much cheaper than gasoline or diesel as a vehicle fuel, as shown in the figure below from the U.S. DOE Alternative Fuels Data Center.

[24] U.S. DOE Alternative Fuels Data Center, "AFV and HEV Model Offerings, by Manufacturer" (Mar. 2016), https://www.afdc.energy.gov/data/10304.

[25] U.S. DOE, "Electric-Drive Vehicles" (Sept. 2017) at 2, *available at* https://www.afdc.energy.gov/uploads/publication/electric_vehicles.pdf.

[26] McKinsey & Company, "Electrifying insights: How automakers can drive electrified vehicle sales and profitability" (Jan. 2017) at 11, *available at* https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/electrifying-insights-how-automakers-can-drive-electrified-vehicle-sales-and-profitability (citing Department of Energy (www.FuelEconomy.gov), EPA).



Source: U.S. DOE, Alternative Fuels Data Center[27] (This chart shows average monthly retail fuel prices in the United States from 2000 to 2018 in dollars per gasoline-gallon equivalents (GGE).)

U.S. DOE estimates that electricity costs for a typical battery electric vehicle range 2¢–4¢ per mile, as compared to conventional sedans for which the costs range about 10¢–15¢ per mile. For PHEVs, electricity costs range about 2¢–4¢ per mile and when running on gasoline, fuel costs range about 5¢–10¢ per mile.[28] Electric-drive vehicle owners can expect to save thousands of dollars in fuel costs over the life of the vehicle.[29] Furthermore, the price of electricity is less volatile than the price of gasoline and diesel fuels, so consumers can more reasonably forecast fuel costs over longer periods of time. Of additional benefit to consumers, battery electric vehicles typically require less maintenance than conventional vehicles and have far fewer moving parts and fewer fluids to change.[30] EVs typically had 20-40 percent lower five-year maintenance costs, based on a comparison of five EVs and comparable internal combustion engine counterparts from the same brand.[31] All in all, consumer savings on fuel can outweigh the additional upfront costs of EVs. For example, a recent study found that compared to a similar gasoline-powered vehicle, the average EV will save its owner more than $3,500 over the

[27] U.S. DOE Alternative Fuel Data Center, "Fuel Prices" https://www.afdc.energy.gov/fuels/prices.html (last updated Sept. 26, 2018) (*Electric prices are reduced by a factor of 3.4 because electric motors are 3.4 times more efficient than internal combustion engines).

[28] U.S. DOE, "Electric-Drive Vehicles" (Sept. 2017) at 4, *available at* https://www.afdc.energy.gov/uploads/publication/electric_vehicles.pdf.

[29] *Id.* at 3.

[30] *Id.* at 4.

[31] McKinsey & Company, "Electrifying insights: How automakers can drive electrified vehicle sales and profitability" (Jan. 2017) at 15, *available at* https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/electrifying-insights-how-automakers-can-drive-electrified-vehicle-sales-and-profitability (citing Edmunds).

vehicle's lifetime even if gasoline prices remain in the range of $2.50 per gallon.[32] In addition, as discussed below, upfront EV costs are declining considerably—primarily as a result of declining battery costs—making these vehicles increasingly affordable for consumers. A recent Bloomberg New Energy Finance Report concluded that EVs and gasoline vehicles will reach cost parity in Europe and the U.S. by 2025, and that EVs will account for 54 percent of all light-duty vehicle sales globally by 2050.[33] A report by UBS predicts that electric vehicles will be less expensive much sooner than expected, with EV prices in Europe comparable to traditionally-powered vehicles in 2018, with China expected to reach cost parity in 2023 and the U.S. in 2025. UBS also increased its forecasts for global electric car sales to 14 percent by 2025 (14.2 million vehicles).[34]

An increasing number of EVs are now available at lower cost, increasing their accessibility to more Americans. For example, the Chevy Bolt sells for approximately $37,000 MSRP.[35] The Plug In America vehicle tracker shows a host of new plug-in electric vehicles selling in the $20,000-30,000 range.[36]

5. The NPRM's Treatment of EV and Battery Costs is Incorrect

EV costs, largely driven by battery costs, appear to be unreasonably high in the NPRM and PRIA.[37] For the NPRM the Argonne National Laboratory's BatPac model was used to determine the size and cost of the battery for different vehicle classes and different types of vehicle electrification. PRIA at 366. The PRIA describes some ways in which the modeling increased the costs: battery pack cost adjusted upward; battery management system cost increased; and battery automatic and manual disconnect unit cost was added. PRIA at 366-67. Based on review of the CAFE model, EPA found that technology cost values in the CAFE model inputs that are higher than expected when considering data from DOE for battery costs.[38] The agencies' analysis is not sufficiently transparent, but it appears that the battery costs are significantly overestimated in the modeling supporting the NPRM.

---

[32] Frontier Group, "Drive Clean and Save: Electric Vehicles Are a Good Deal for California Consumers and the Environment" (July 2016) at 1-2, 6-7, *available at* http://environmentcaliforniacenter.org/sites/environment/files/reports/Drive%20Clean%20and%20Save%20June%202016.pdf.

[33] Bloomberg New Energy Finance, "Electric Vehicles to Accelerate to 54% of New Car Sales by 2040" (July 6, 2017), https://about.bnef.com/blog/electric-vehicles-accelerate-54-new-car-sales-2040/; Jess Shankleman, "Pretty Soon Electric Cars Will Cost Less Than Gasoline" (May 26, 2017), https://www.bloomberg.com/news/articles/2017-05-26/electric-cars-seen-cheaper-than-gasoline-models-within-a-decade.

[34] Neil Winton, "Electric Car Price Parity Expected Next Year – Report" (May 22, 2017), https://www.forbes.com/sites/neilwinton/2017/05/22/electric-car-price-parity-expected-next-year-report/#13dff40a7922; UBS, "Q-Series UBS Evidence Lab Electric Car Teardown – Disruption Ahead?" (May 18, 2017), *available at* http://www.advantagelithium.com/_resources/pdf/UBS-Article.pdf.

[35] Chevy, "Bolt EV," https://www.chevrolet.com/electric/bolt-ev-electric-car (last visited Oct. 25, 2018).

[36] *Available at* https://plugstar.zappyride.com/cars.

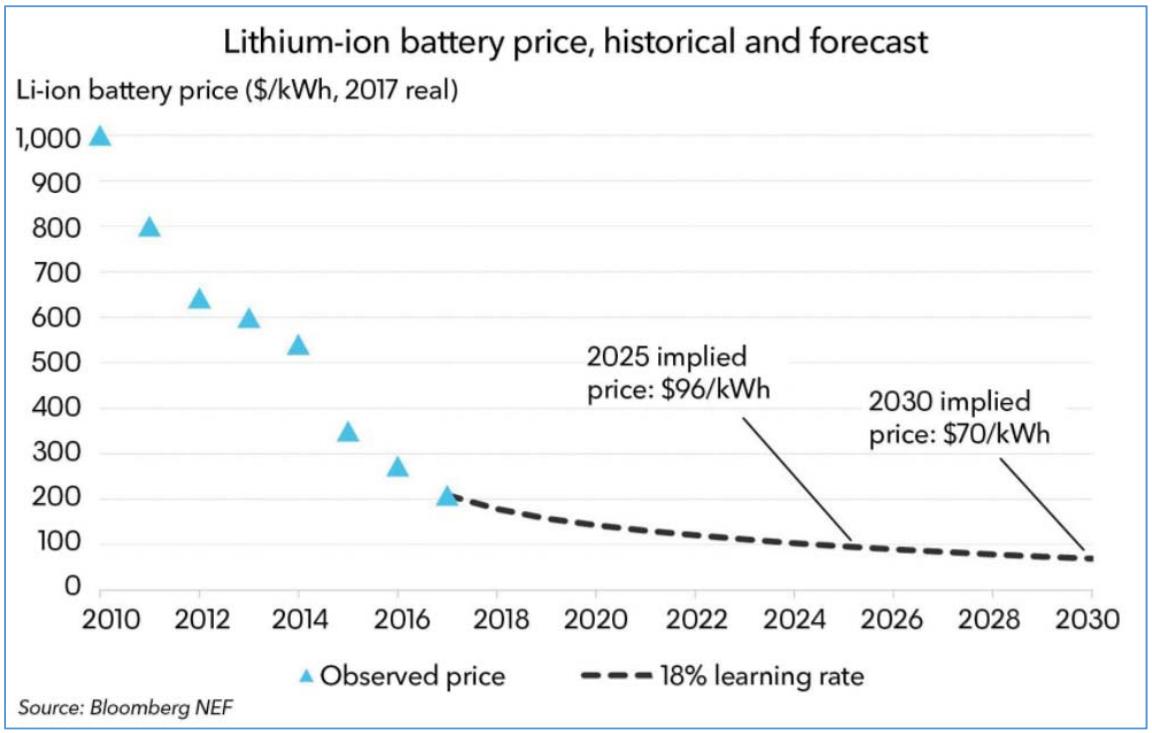
[37] *See* Exhibit A (EPA Further Review of CAFE Model & Inputs, February 28, 2018, EPA-HQ-OAR-2018-0283-0453).

[38] Exhibit A (EPA Further Review of CAFE Model & Inputs, February 28, 2018).

Overall, battery technology has improved and battery costs have fallen dramatically due in part to reduced material costs, manufacturing improvements, and higher manufacturing volumes. According to Bloomberg New Energy Finance, the average energy density of EV batteries is improving at around 5-7% per year.[39] In 2010, the average battery pack prices were $1,000/kWh. At the end of 2017, those average prices dropped to $209/kWh, demonstrating a 79% drop in just seven years.[40] As recent examples, Tesla has been on track to achieve $100/kWh by the end of 2018 and Audi has been buying batteries at $114/kWh, according to trade press reports.[41]

Tesla has pioneered advanced manufacturing techniques to manufacture large volumes of battery packs with high quality at low cost.[42] Tesla now produces of advanced lithium-ion batteries at its Gigafactory in Nevada. 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.[43]

Bloomberg New Energy Finance's 2018 analyses show that battery costs are projected to continue to decline substantially.[44]



[39] Bloomberg New Energy Finance, "Electric Vehicle Outlook: 2018," https://bnef.turtl.co/story/evo2018?teaser=true.

[40] *Id.*

[41] Fred Lambert, "Tesla to achieve leading $100/kWh battery cell cost this year, says investor after Gigafactory 1 tour" (Sept. 11, 2018), https://electrek.co/2018/09/11/tesla-100-kwh-battery-cost-investor-gigafactory-1-tour/.

[42] Tesla, Inc., S.E.C. Form 10-K (Feb. 22, 2018) at 3-4, *available at* https://www.sec.gov/Archives/edgar/data/1318605/000156459018002956/tsla-10k_20171231.htm.

[43] Tesla, "Tesla Gigafactory," https://www.tesla.com/gigafactory (last visited Oct. 25, 2018).

[44] Bloomberg New Energy Finance, "New Energy Outlook 2018," https://bnef.turtl.co/story/neo2018?teaser=true.

Bloomberg New Energy Finance projects that the cost of batteries will decrease by 77 percent between 2016 and 2030. As a result, EVs will be less expensive to buy than conventional gasoline vehicles by 2025 in the U.S.[45] This up-front cost parity point does not take into consideration the fuel savings and maintenance savings over the lifetime of EV use as compared to gasoline vehicle use, which (as discussed in Section III.A.4) is substantial.

The increase in mass manufacturing of lithium-ion storage is expected to continue to reduce battery prices. As a Goldman Sachs analysis recently concluded: "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."[46]

The International Council on Clean Transportation's (ICCT) Efficiency Technology and Cost Assessment concluded that, primarily because of rapid developments in battery pack technologies, EV costs will be reduced by $4,300-$5,300 of dollars per vehicle by 2025 compared to EPA's prior estimates in support of the MY 2017-2025 standards. ICCT concludes that battery costs of $140/kWh is a realistic estimated value by 2025, as compared with EPA estimates in the 2016 Mid-Term Evaluation (MTE) analysis of $180-200/kWh.[47]

6. Consumer Demand Will Track Growing Options and Declining Costs

In the NPRM, the agencies state that "ongoing low sales volumes and a growing body of literature suggest that consumer welfare losses may still exist if manufacturers are forced to produce electric vehicles in place of vehicles with internal combustion engines (forcing sacrifices to cargo capacity or driving range) in order to comply with standards." 83 Fed. Reg. at 43,083. More generally, the agencies disparage consumer acceptance of and demand for EVs throughout the NPRM.

NCAT disagrees with these views. As set forth above, demand for EVs is projected to grow dramatically in coming years, costs are declining, model offerings, range and performance are increasing, and auto manufacturers are investing heavily in EVs as a critical element of sales and the future fleet mix. As manufacturers offer more vehicles with better range, and invest more heavily in marketing these vehicles, there is reason to expect concomitant expansion in consumer demand.

For example, Tesla's growth to the present while the existing vehicle standards are in effect illustrates that past projections of consumer acceptance of EV technology have been repeatedly surpassed. By selling over 103,000 cars, Tesla's 2017 sales volume equaled the sales

[45] Jess Shankleman, "Pretty Soon Electric Cars Will Cost Less Than Gasoline" (May 26, 2017), https://www.bloomberg.com/news/articles/2017-05-26/electric-cars-seen-cheaper-than-gasoline-models-within-a-decade; Jess Shankleman, "The Electric Car Revolution Is Accelerating" (July 6, 2017), https://www.bloomberg.com/news/articles/2017-07-06/the-electric-car-revolution-is-accelerating.

[46] Goldman Sachs, "An Inflection Point in the Global Expansion of Electric Vehicles" (May 18, 2018), https://www.goldmansachs.com/insights/pages/inflection-point-electric-vehicles-chris-buddin.html.

[47] ICCT, "Efficiency Technology and Cost Assessment for U.S. 2025-2030 Light-duty Vehicles" (Mar. 2017) at 11, 15, *available at* http://www.theicct.org/US-2030-technology-cost-assessment.

volume that had been predicted in the draft TAR for MY 2025.[48] Tesla's existing EV market sales already surpass the agencies' predicted fleet mix in the current NPRM, which predicts 1% fleet technology penetration level for EV passenger cars through 2029.[49] However, in September 2018, Tesla's share of the U.S. market share was over 2%[50] and EVs were an even greater percent of the market share when taking into account other manufacturers. Tesla's market performance directly shows that consumers are increasingly preferring EV technology.

Notably, the substantial growth in EV demand has occurred despite limited consumer awareness of EVs.[51] As EV deployment, options, marketing, and market penetration continues to ramp up, consumer awareness will likewise increase—helping to expand latent consumer demand. Results of a survey by the Consumer Federation of America show that consumer interest in purchasing an EVs is increasing, and that this interest greatest among young adults.[52] A recent survey by AAA found that 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."[53]

7. EVs Create U.S. Jobs

The major commitments to advanced technology vehicles by manufacturers in the U.S. spur job creation. For example, Mercedes announced that it will spend $1 billion to upgrade production capabilities to manufacture electric vehicles and batteries in Alabama, which would create 600 new jobs.[54] Building technology that improves fuel economy for innovative vehicles is directly responsible for more than 288,000 jobs in 48 states, according to recent assessments by the BlueGreen Alliance.[55] These high-quality jobs include occupations in research and development, engineering, software development, manufacturing, maintenance, infrastructure

[48] Draft TAR at 4-20; Tesla, Inc., S.E.C. Form 10-K (Feb. 22, 2018) at 39.

[49] *See* 83 Fed. Reg. at 43267, Table VII-6, 43218-21, Tables V-1 thru V-4.

[50] Statista, "Tesla's estimated U.S. market share from January 2018 to September 2018," https://www.statista.com/statistics/519579/market-share-of-tesla-in-the-united-states/.

[51] Based on a survey of consumers in the U.S., Germany, Norway, and China, a recent McKinsey & Company report found that approximately 50 percent of all consumers today are not yet familiar with EVs and related technology. Despite this lack of awareness from many consumers, the report also found that a large share of prospective new vehicle buyers in the U.S. (29 percent) are considering purchasing an EV model, demonstrating that there is "substantial latent demand for EVs" as consumer awareness increases. McKinsey & Company, "Electrifying insights: How automakers can drive electrified vehicle sales and profitability" (Jan. 2017) at 8, *available at* https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/electrifying-insights-how-automakers-can-drive-electrified-vehicle-sales-and-profitability (citing Department of Energy (www.FuelEconomy.gov), EPA).

[52] Consumer Federation of America, "New Data Shows Consumer Interest in Electric Vehicles Is Growing" (Sept. 19, 2016), http://consumerfed.org/press_release/new-data-shows-consumer-interest-electric-vehicles-growing/.

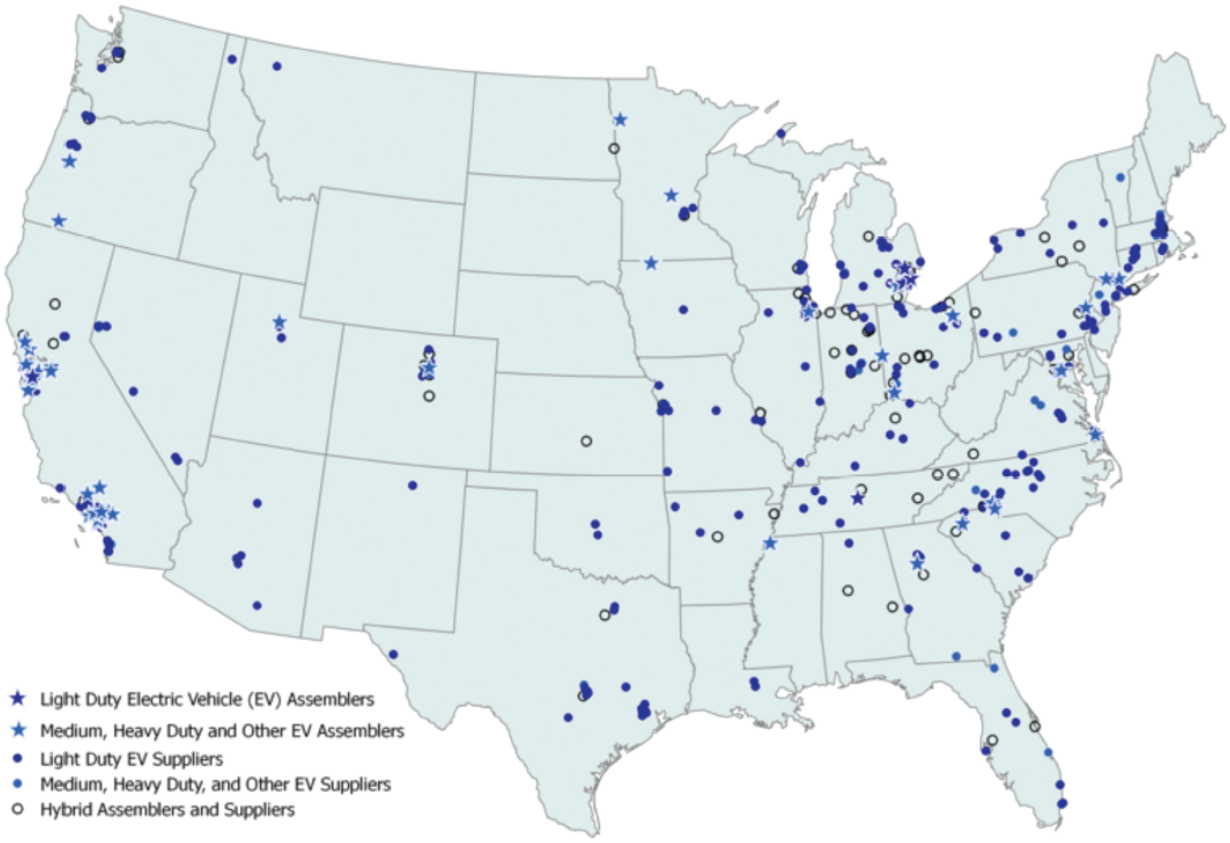
[53] AAA, "1-in-5 U.S. Drivers Want an Electric Vehicle" (May 8, 2018), https://newsroom.aaa.com/2018/05/1-in-5-us-drivers-want-electric-vehicle/.

[54] Ivana Kottasová, "Mercedes-Benz will spend $1 billion to upgrade its production capabilities in Alabama and jump-start its electric vehicle program in the U.S." (Sept. 22, 2017), http://money.cnn.com/2017/09/22/news/economy/mercedes-alabama-billion-investment-jobs/.

[55] BlueGreen Alliance & NRDC, "Supplying Ingenuity II: U.S. Suppliers of Key Clean Fuel-Efficient Technologies" (May 2017) at 3, *available at* https://www.bluegreenalliance.org/resources/supplying-ingenuity-ii-u-s-suppliers-of-key-clean-fuel-efficient-vehicle-technologies/.

development and sales. Electric vehicle manufacturing is taking place in many different locations across the U.S., as illustrated in the following figure.

Figure 2: U.S. Electric Vehicle Manufacturing Today



Source: BlueGreen Alliance (Sept. 2018)[56]

8. International Policy Developments Support Growth and Underscore Need for U.S. Leadership

The global market for electric vehicles and other advanced technology vehicles and supporting technologies is expanding rapidly and projected to grow dramatically in the coming decades—presenting a major market opportunity for U.S. companies. Strong U.S. standards will play a critical role in helping to ensure that U.S. companies are well positioned to compete in these rapidly expanding new markets.

According to the International Energy Agency (IEA), over 1 million electric cars were sold in 2017 and the global count of electric cars surpassed 3 million vehicles in 2017 after an

[56] BlueGreen Alliance, "Electric Vehicles at a Crossroads: Challenges and Opportunities for the Future of U.S. Manufacturing and Jobs" (Sept. 12, 2018) at 3, *available at* https://www.bluegreenalliance.org/resources/electric-vehicles-at-a-crossroads/.

expansion of 50% over 2016.[57] The IEA now predicts that that the number of electric cars on the road globally will be 125 million by 2050.[58] As described above, analysts are increasingly projecting that EVs will reach cost parity with conventional vehicles in China, Europe and the U.S. in the 2018-2025 time frame and could account for an increasingly substantial proportion of global vehicle sales in that time frame and beyond (14 percent by 2025 and 54 percent by 2050).[59]

In tandem with these developments, other countries representing a large proportion of global vehicles markets are increasingly moving towards aggressive low- and zero-emission vehicle standards and policies, which will shape global markets in the coming decades:

- China—which represents around 30 percent of the global auto market for passenger vehicles—recently announced it is considering a ban on cars that run on fossil fuels, indicating the government wants tighter fuel consumption controls for engines and is considering more EV sales credits.[60]

- The United Kingdom and France committed to banning sales of new diesel- and gasoline-fueled cars by 2040.[61]

- India announced its intention to sell only electric cars by 2030.[62]

[57] International Energy Agency, "Key findings from Global EV Outlook 2018" (2018), https://www.iea.org/gevo2018/.

[58] *Id*.

[59] Neil Winton, "Electric Car Price Parity Expected Next Year – Report" (May 22, 2017), https://www.forbes.com/sites/neilwinton/2017/05/22/electric-car-price-parity-expected-next-year-report/#13dff40a7922; UBS, "Q-Series UBS Evidence Lab Electric Car Teardown – Disruption Ahead?" (May 18, 2017), *available at* http://www.advantagelithium.com/_resources/pdf/UBS-Article.pdf; Jess Shankleman, "Pretty Soon Electric Cars Will Cost Less Than Gasoline" (May 26, 2017), https://www.bloomberg.com/news/articles/2017-05-26/electric-cars-seen-cheaper-than-gasoline-models-within-a-decade.

[60] Kenneth Rapoza, "To Promote Electric Cars, China Considers Move To Ban Gas Guzzlers" (Sept. 11, 2017), https://www.forbes.com/sites/kenrapoza/2017/09/11/to-promote-electric-cars-china-considers-move-to-ban-gas-guzzlers/#2374490551b7; Bloomberg News, "China Fossil Fuel Deadline Shifts Focus to Electric Car Race" (Sept. 10, 2017), https://www.bloomberg.com/news/articles/2017-09-10/china-s-fossil-fuel-deadline-shifts-focus-to-electric-car-race-j7fktx9z; Russ Mitchell & Jessica Meyers, "China is banning traditional auto engines. Its aim: electric car domination" (Sept. 12, 2017), http://www.latimes.com/business/autos/la-fi-hy-china-vehicles-20170911-story.html; David Roberts, "The world's largest car market just announced an imminent end to gas and diesel cars," Vox (Sept. 13, 2017), https://www.vox.com/energy-and-environment/2017/9/13/16293258/ev-revolution.

[61] Steven Castle, "Britain to Ban New Diesel and Gas Cars by 2040" (July 26, 2017), https://www.nytimes.com/2017/07/26/world/europe/uk-diesel-petrol-emissions.html; Jack Ewing, "France Plans to End Sales of Gas and Diesel Cars by 2040" (July 6, 2017), https://www.nytimes.com/2017/07/06/business/energy-environment/france-cars-ban-gas-diesel.html.

[62] Jackie Wattles, "India to sell only electric cars by 2030" (June 3, 2017), http://money.cnn.com/2017/06/03/technology/future/india-electric-cars/index.html.

- Norway has announced it will ban the sale of all fossil fuel-based cars by 2025.[63] Adoption of EVs in Norway has been robust with around 45% of all new passenger cars registered in Norway in September 2018 being all-electric vehicles and around 60% of all registrations were electric when including plug-in hybrids.[64]

- Israel also recently announced that consumers will no longer be able to buy new gasoline or diesel-powered vehicles after 2030.[65]

U.S. companies must continue to invest in advanced vehicle technologies to keep up, and strong U.S. standards play a key role in ensuring U.S. companies' competitiveness. NCAT supports an approach that helps assure U.S. leadership and provides regulatory certainty and stable, long-term signals for investment, research and development, and commercialization.

B. Continued Electric Infrastructure Development and Benefits

1. Benefits of EVs to the Grid

The scaling up of EVs in the U.S. will provide substantial benefits for the management of the electric grid itself. By improving utilization of the existing power grid and spreading fixed costs over a larger base of sales, EV use can benefit not just EV owners, but other electricity consumers as well. For instance, transportation electrification can benefit all customers by putting downward pressure on electricity rates, as fixed costs are spread over a larger base of kWh sold. EVs are also beneficial for integrating renewable energy (by charging EVs when renewable energy is more abundant and their load is less costly), and improving system utilization.[66] In addition, because consumers have some flexibility with regard to the time of day at which they charge EVs, charging can be managed to rely on baseload power generation or excess renewable generation rather than drawing electricity from the grid during peak times.[67] Many utilities across the country are utilizing time of use rates to encourage consumers to charge EVs at off-peak times.[68] Managing charging times for EVs will provide multiple benefits, including reducing the amount of generating capacity that would need to be built, smoothing out demand, capitalizing on times when there is abundant availability of cleaner renewable power

---

[63] Jess Staufenberg, "Norway to 'completely ban petrol powered cars by 2025'" (June 6, 2016), http://www.independent.co.uk/environment/climate-change/norway-to-ban-the-sale-of-all-fossil-fuel-based-cars-by-2025-and-replace-with-electric-vehicles-a7065616.html.

[64] OFV, "Car sales in September," http://www.ofvas.no/bilsalget-i-september/category782.html.

[65] Reuters, "Israel aims for zero new gasoline, diesel-powered vehicles by 2030" (Oct. 9, 2018), https://www.reuters.com/article/us-israel-electric-vehicles/israel-aims-for-zero-new-gasoline-diesel-powered-vehicles-by-2030-idUSKCN1MJ1PS.

[66] Southern California Edison, "Prepared Testimony in Support of Southern California Edison Company's Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs" (June 26, 2018) at 22, http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/269F29887CEF2390882582C20065927E/$FILE/A1806015-SCE-01-Charge%20Ready%202%20Testimony.pdf.

[67] The modeled economic impact of the improved asset utilization can be found in a California statewide analysis by ICF International and Energy + Environmental Economics (ICF & E3 2014).

[68] *See, e.g.*, EPRI, "Review and Assessment of Electric Vehicle Rate Options in the United States" (Jan. 8, 2018), *available at* https://www.epri.com/#/pages/product/000000003002012263/?lang=en-US.

(thus reducing "curtailment" of such resources and reducing overall emissions from electricity generation), and reducing costs for all consumers across the system.[69]

In the future, EVs are expected to provide a means of facilitating storage of energy and transfer back to the grid to assist utilities in meeting peak demand—an approach referred to as vehicle grid integration.[70] Early studies have shown potential for significant benefits of vehicle grid integration. A May 2018 Lawrence Berkeley National Laboratory analysis identified the potential for EVs to replace upwards of $15 billion of investment in energy storage required to operate a future California transmission system.[71] A recent European pilot conducted by Nissan identified upwards of $1,500 per year of potential earnings, per vehicle, participating in vehicle grid integration.[72]

The U.S. DOE's National Renewable Energy Laboratory (NREL) conducted a simulation in which a utility generates half its electricity from renewable sources. The simulated results, based on three million EVs implementing 50 percent optimized charging, demonstrated substantial annual benefits to utilities using managed charging, including: generation of $310 million in grid savings; reduction of electricity costs by 1–3 percent; reduction in peak demand by 1.5 percent; reduction in grid-related carbon dioxide emissions by 1–4 percent; and reduction in renewable curtailment by 25 percent.[73]

2. Significant Investments in Electric Infrastructure Development

Utilities and others are continuing to make substantial investments in infrastructure to support transportation electrification. A 2017 study by the Edison Electric Institute and Institute for Electric Innovation provides an overview of the wide range of public and commercial funding that has supported plug-in electric vehicle charging infrastructure, including from automakers, electric companies, customers, state governments, and the federal government.[74] Across the U.S., electric utilities have already invested tens of millions of dollars in EV charging

---

[69] *See, e.g.*, California Air Resources Board (CARB), "California's Advanced Clean Cars Midterm Review: Summary Report for the Technical Analysis of the Light Duty Vehicle Standards" (Jan. 18, 2017) at D-25, *available at* https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf (MTR Technical Report); Southern California Edison, "Testimony of Southern California Edison Company in Support of its Application of Southern California Edison Company (U 338-E) For Approval of its 2017 Transportation Electrification Proposals" (Jan. 20, 2017) at 15-16, *available at* http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/F5582C9D0A9A3659882580AE007F74A4/$FILE/A1701XXX-SCE%20TE%20Testimony%201-20-17.pdf; CalETC, "Evaluating Methods to Encourage Plug-in Electric Vehicle Adoption" (Oct. 2016) at 6, *available at* http://www.caletc.com/wp-content/uploads/2016/10/PIA-Incentive-Survey-Paper-CS5-final-cosmetic.pdf.

[70] *See, e.g.*, CARB, MTR Technical Report, *supra* note 69 at D-23–D-24; CalETC, Evaluating Methods to Encourage Plug-in Electric Vehicle Adoption, *supra* note 69 at 7.

[71] Jonathan Coignard et al, Lawrence Berkeley National Laboratory, "Clean vehicles as an enabler for a clean electricity grid" (May 16, 2018) at 6, *available at* http://iopscience.iop.org/article/10.1088/1748-9326/aabe97/pdf.

[72] Stephen Edelstein, "This Is How Parked Electric Cars Are Earning Money in Denmark" (Aug. 15, 2017), http://www.thedrive.com/tech/13498/this-is-how-parked-electric-cars-are-earning-money-in-denmark.

[73] U.S. DOE, NREL, "Connecting Electric Vehicles to the Grid for Greater Infrastructure Resilience" (Apr. 20, 2017), https://www.nrel.gov/news/program/2017/connecting-electric-vehicles-to-the-grid-for-greater-infrastructure-resilience.html.

[74] Adam Cooper & Kellen Schefter, Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required, *supra* note 10 at 13 (Table A-1).

infrastructure programs.[75] And utilities are developing plans to invest billions of dollars in transportation electrification infrastructure in the near future.

For example, in May 2018 the California Public Utilities Commission approved a portfolio of EV charging projects worth $738 million for Pacific Gas & Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E).[76] PG&E, SCE, and SDG&E are also implementing pilot programs to install EV-related infrastructure to support up to 12,500 charging stations with total budgets up to $197 million.[77] Over the next five years, the Los Angeles Department of Water and Power (LADWP) has a planned budget of approximately $65.6 million for commercial EV rebates and programs, $35.6 million for EV infrastructure on City property, $11.7 million for residential EV programs, among other programs. In addition, the Southern California Association of Governments issued a 2016-2040 Regional Transportation Plan that relies in part (though not exclusively) on transportation electrification strategies. Overall, this plan is projected to require investments of $556 billion, including $246 billion in capital improvements; it would result in the creation of 351,000 additional jobs.[78]

These investments in California are an indicator of future opportunities across the country. According to a recent report by the NC Clean Energy Technology Center, over three-quarters of U.S. states took action related to EVs in 2017, with such actions including market development, regulations, rate design, incentives, deployment, and studies/investigations.[79] For example, in New York Governor Andrew Cuomo recently announced up to $250 million out to 2025 for a New York Power Authority program to build electric vehicle charging infrastructure.[80] In Maryland, utilities proposed spending over $100 million to build a network of charging stations and this proposal is currently under consideration by the MD Public Service Commission.[81]

Investments in alternative fueling infrastructure have made charging/refueling more convenient for consumers. Based on data from the U.S. DOE Alternative Fuels Data Center, there were approximately 13,400 EV charging outlets in 2012 whereas there are over 62,000 EV

---

[75] M.J. Bradley & Associates, LLC, "Accelerating the Electric Vehicle Market Potential Roles of Electric Utilities in the Northeast and Mid-Atlantic States" (Mar. 2017) at Appendix A, *available at* http://www.mjbradley.com/sites/default/files/MJBA_Accelerating_the_Electric_Vehicle_Market_FINAL.pdf.

[76] California Public Utilities Commission (CPUC), "Transportation Electrification Activities Pursuant to Senate Bill 350, "http://www.cpuc.ca.gov/sb350te/ (list visited Oct. 25, 2018).

[77] CPUC, "Zero-Emission Vehicles," http://www.cpuc.ca.gov/zev/ (last visited Oct. 17, 2018); CPUC, http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Infrastructure/RDD_and_Emerging_Programs/Alternative_Fuel_Vehicles/IOUInfrastructurePrograms.pdf (last visited Oct. 17, 2018).

[78] Southern California Association of Governments, "2016-2040 Regional Transportation Plan/Sustainable Communities Strategy" (Apr. 2016) at 8-9, *available at* http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf.

[79] NC Clean Energy Technology Center, "50 States of Electric Vehicles: 2017 Annual Review" (Feb. 2018), *available at* https://nccleantech.ncsu.edu/wp-content/uploads/2018/06/2017_EVs_Final2-1-1.pdf.

[80] NY Power Authority, "EVolve NY," https://www.nypa.gov/innovation/programs/evolveny (last visited Oct. 25, 2018).

[81] Maryland Public Service Commission, "Transforming Maryland's Electric Grid (PC44)," https://www.psc.state.md.us/transforming-marylands-electric-grid-pc44/ (last visited Oct. 25, 2018).

charging outlets today located at over 22,000 different stations across the U.S.[82] In California and the other nine States that have adopted the ZEV standards, over 17,000 Level 2 and 2,100 direct current fast charger connectors have been deployed for public use as of 2017.[83] In addition, today the vast majority of vehicle charging is done at private residences.[84] As another example of the expanding charging infrastructure for EVs, since 2012 Tesla has invested heavily in siting, building, and operating electric vehicle charging infrastructure. In 2013, Tesla had 8 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.[85] Ninety-nine percent of the U.S. population is within 150 miles of a Tesla Supercharger. The network also includes more than over 19,000 Destination Charging[86] connectors worldwide that replicate the convenience of home charging by providing hotels, resorts, and restaurants with Tesla Wall Connectors.[87]

NCAT anticipates a virtuous cycle of interaction between state and federal vehicle standards that help to incentivize EVs and advanced technology vehicles, commercial availability and deployment of such vehicles, and increasing investment in charging infrastructure.

3. The PRIA Overstates the Risks and Understates the Benefits of EV Charging

The agencies' discussion of potential impacts of increased EV charging on the electric grid is misleading. Specifically, the PRIA overstates the risks to the grid associated with EV charging and understates the potential benefits from EV charging and vehicle grid integration. *See* PRIA at 363-65. The PRIA's characterization of "risk" based on potential need for new generation capacity and upgrades to electrical equipment is inappropriate. As in any industry experiencing growth, an increase in demand may require additional investment to expand supply. But substantial investment in the electric grid is already underway, and additional demand allows investments already made to be more efficiently utilized. The PRIA states: "While large-scale deployment of EVs may not require additional electricity generation capacity if charging occurs at night-time when electrical demand is well below peak, uncontrolled charging can have significant negative impacts such as voltage stability control,[] faster aging of transformers,[] and shortened insulation life,[] among other impacts to the electricity distribution grid.[]" PRIA at 363. As explained below, the PRIA's focus on worst case hypotheticals does not reflect the current capabilities of the grid, nor the dynamic nature of EV charging to mitigate any potential

---

[82] U.S. DOE Alternative Fuel Data Center, "Alternative Fueling Station Counts by States," https://www.afdc.energy.gov/fuels/stations_counts.html (last updated Oct. 24, 2018); U.S. DOE Alternative Fuel Data Center, "U.S. Alternative Fueling Stations by Fuel Type," https://www.afdc.energy.gov/data/10332 (last visited Oct. 24, 2018). These totals includes both public and private charging locations, but not residential electric charging infrastructure.

[83] CARB, MTR Technical Report, *supra* note 69 at ES-44.

[84] Adam Cooper & Kellen Schefter, Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required, *supra* note 10 at 7.

[85] Tesla, "Charge on the Road," https://www.tesla.com/supercharger (last visited Oct. 25, 2018).

[86] Tesla, "Tesla Second Quarter 2018 Update" at 2, *available at* http://ir.tesla.com/static-files/7235e525-db16-470c-8dce-9ecac0ad7712.

[87] Tesla, "Destination Charging Locations," https://www.tesla.com/destination-charging.

negative impacts. In both in the short-term and long-term, the impact of EVs with respect to the electric grid would have a net-positive impact to society, including the EV owners and utility customers broadly.

While substantial investments in EV infrastructure have and will be made, the costs and benefits to consumers must be put into the appropriate context. The PRIA cites to a 2017 Smart Electric Power Association (SEPA) report to support the assertion that "[w]ith clustered charging, a study of one utility district in California found that 17 percent of transformers may need replacement due to EV overloads, costing approximately $7,000 per transformer or $84 million for the district alone." PRIA at 364.[88] However, this SEPA report results do not represent a realistic scenario but rather a worst case scenario for NCAT member the Sacramento Municipal Utility District (SMUD). This SEPA report assumed that almost 1 out of 2 residential customers adopt EVs and also assumed that electrical distribution infrastructure was de-rated to about 70% of its allowable capacity. This scale of EV adoption is about 2.5 times the forecasted EV market growth over the next 15 years in one of the strongest EV markets in the United States. Under more realistic assumptions for SMUD as used in (Berkheimer et al., 2014) and (Dunckley et al., 2016), the average lifetime distribution infrastructure impact is closer to $80-90/EV with the adoption of time of use rates and assuming a diversity of charging rates. The system-wide infrastructure upgrade costs are estimated to be about one-tenth of that estimated in the cited SEPA report. Furthermore, both SMUD studies show different results than suggested by Muratori 2018, which the PRIA cites on page 364. Specifically, Level 1 charging (120 volt, 1.2 kW) results in a negligible impact on distribution transformers. For context, the Level 1 charging load is comparable to a hair dryer running on high heat.

As another example, of the approximately 275,000 vehicles estimated to be on the road as of October 2017 in the service areas of California's three investor-owned utilities, only 460 or 0.16%, required a service line or distribution system upgrade solely to support the plug-in electric vehicle load at their residential charging location. The standard allowance for residential service upgrades was sufficient to cover the portion of the service upgrade cost that is assigned to the utility in all but 69 instances.[89] Based on this recent study, the three investor-owned utilities "evaluated the service and distribution system upgrades needed due to the addition of [plug-in electric vehicle] load and have determined that the number of upgrades and associated costs to date is immaterial."[90]

IV. CROSS-CUTTING ISSUES IN THE NPRM'S TECHNICAL AND ECONOMIC ANALYSES

In Sections V and VI, below, we provide comments on the statutory requirements of EPCA and CAA Section 202(a) as they relate to the agencies' proposed standards. Before turning to that analysis, however, we address several major, cross-cutting flaws in the analysis underpinning the NPRM. These issues include:

---

[88] Citing Smart Electric Power Alliance, Utilities and Electric Vehicles The Case for Managed Charging (2017).

[89] Joint IOU Electric Vehicle Load Research Report (December 29, 2017) at 1-2, 12, available at http://www.cpuc.ca.gov/zev/ (2016-2017 Load Research Report).

[90] *Id.* at 25.

- EPA's failure (or inability) to conduct independent analysis in support of its proposal, EPA career staff's express rejection of modeling and analysis conducted by NHTSA, and the agencies' failure to address the major issues identified by EPA staff;

- Serious problems with the NHTSA's modeling of fleet turnover, including new vehicle purchases and scrappage, which result in significant overestimation of the VMT savings and safety benefits of the proposal and significant underestimation of the rule's adverse impacts on fuel consumption, GHG and non-GHG pollutant emissions, and other impacts;

- Serious flaws in NHTSA's modeling of technology costs, leading to significant overestimation of the cost savings attributable to the proposal and misunderstanding of the existing standards' implications for costs and consumer acceptance.

These are not the only serious problems with the agencies' analysis—just the most fundamental ones that have the largest impacts on the agencies' benefit-cost analysis and standard-setting decisions. Unfortunately, the agencies' analysis is not sufficiently transparent to fully differentiate the impacts of each of these elements. However, it appears that if only the errors identified here were corrected, the agencies' proposal would be shown to result in significant net costs. These errors are so pervasive and fundamental that, if uncorrected, they would render the agencies' proposed standards indefensible as a substantive matter (under EPCA, the CAA, and the Administrative Procedure Act). Correction of these errors, moreover, will require a substantial rethinking of the proposed standards. NCAT accordingly urges the agencies to (1) correct these errors, including through independent and parallel modeling and analysis conducted directly by EPA, and (2) issue a supplemental notice of proposed rulemaking or notice of data availability providing an additional opportunity for comment before issuing a final rule.

A. Overall Cost-Benefit Results

The agencies' overall framework for reporting its analysis of costs and benefits of the NPRM is reflected in the table below, which reports projected costs and benefits of the preferred option CAFE standards at a 3% discount rate (Table 8-26 of the PRIA). This table is similarly structured to other tables (8.27 to 8.29) addressing the GHG and CAFE standards, and providing analysis at both 3% and 7% discount rates. Some key elements relevant to the discussion that follows include line 5 (lower purchase prices for new vehicles – affected by technology cost estimation), line 11 (reduced costs for injuries and fatalities from driving in used vehicles – affected by fleet turnover modeling), and line 17 (reduction in externalities from lower vehicle use – affected by fleet turnover modeling and the rebound effect).

Table 8-26 - Benefits and Costs Resulting from the Proposed CAFE Standards (present values discounted at 3%)

Line	Affected Party	Source	Private Benefits and (Costs)	Amount
1	Vehicle Manufacturers	CAFE model	Savings in technology costs to increase fuel economy	$252.6
2			Reduced fine payments for non-compliance	$3.0
3		assumed = -(1+2)	Net loss in revenue from lower vehicle prices	($255.6)
4		net = 1+2+3	Net benefits to manufacturers	$0.0
5	New Vehicle Buyers	assumed = 3	Lower purchase prices for new vehicles	$255.6
6		CAFE model	Reduced injuries and fatalities from higher vehicle weight	$2.4
7			Higher fuel costs from lower fuel economy (at retail prices)*	($152.6)
8			Inconvenience from more frequent refueling	($8.5)
9			Lost mobility benefits from reduced driving	($61.0)
10		net = 5+6+7+8+9	Net benefits to new vehicle buyers	$35.9
11	Used Vehicle Owners	CAFE model	Reduced costs for injuries and property damage costs from driving in used vehicles	$88.3
12	All Private Parties	net = 4+10+11	Net private benefits	$124.2
Line	Affected Party	Source	External Benefits and (Costs)	Amount
13	Rest of U.S. Economy	CAFE Model	Increase in climate damages from added GHG Emissions**	($4.3)
14			Increase in health damages from added emissions of air pollutants**	($1.2)
15			Increase in economic externalities from added petroleum use**	($10.9)
16			Reduction in civil penalty revenue	($3.0)
17			Reduction in external costs from lower vehicle use***	$51.9
18			Increase in Fuel Tax Revenues	$19.7
19		net = 13+14+15+16+17+18	Net external benefits	$52.1
Line	Affected Party	Source	Economy-Wide Benefits and (Costs)	Amount
20	Entire U.S. Economy	total = 1+2+5+6+11+17+18	Total benefits	$673.5
21		total = 3+7+8+9+13+14+15+16	Total costs	($497.2)
22		net = 20+21 (also =12+19)	Net Benefits	$176.3

*Value represents lost fuel savings from lowered fuel economy of MY's 2017-2029 and gained fuel savings from more quickly replacing MY's 1977 to 2029 with newer vehicles.
**Value represents lost external benefits from lowered fuel economy of MY's 2017-2029 and lowered external costs from more quickly replacing MY's 1977 to 2029 with newer vehicles.
*** Value includes lower external costs from reducing rebound effect and any change in overall fleet usage from more quickly replacing MY's 1977 to 2029 with newer vehicles.

B. EPA's Role in the NPRM Modeling and Analysis

In addition to the specific issues identified below, NCAT has serious concerns regarding NHTSA's and EPA's respective roles in generating this analysis. Based on the NPRM record, it appears that EPA has abdicated its obligation, in exercising its authority under the CAA, to make reasoned decisions based on its analysis of relevant information in the record. The analysis

supporting the NPRM appears to have been developed exclusively or primarily by NHTSA. Further, EPA career staff and managers specifically and strongly objected to many key elements of NHTSA's modeling and analytical conclusions reflected in the NPRM and supporting PRIA—specifically including the fleet turnover (new sales and scrappage models) and technology cost estimation. EPA's concerns are outlined in extensive attachments to a June 18, 2018, email from EPA staff to the White House Office of Management and Budget, attached as Exhibit A.[91] EPA staff's comments conclude that the fundamental flaws in the modeling render it inappropriate for policy analysis or assessing the appropriate level of the standards. While EPA staff focused their specific comments primarily on the modeling of the GHG standards, most of their concerns apply equally to the modeling and analysis supporting both the GHG and CAFE standards. NHTSA did not adequately address these concerns in the PRIA or NPRM.

The NPRM includes an extensive defense of the agencies' decision to rely on NHTSA's Volpe model and supporting Department of Energy models, and to no longer rely on EPA's ALPHA and OMEGA models, which were used to support previous joint rulemakings of the two agencies, including the MY 2017-2025 standards. 83 Fed. Reg. at 43000-02. In principle, it may be permissible or appropriate for one agency, in exercising its statutory authorities, to rely on modeling or analysis conducted by another agency. However, each agency nevertheless has an independent duty to evaluate and stand behind the modeling and analysis upon which it purports to base its decisions. *See*, *e.g.*, *Ergon-West Virginia, Inc. v. U.S. Envt'l Protection Agency*, 896 F.3d 600, 612 (4th Cir. 2018) (vacating EPA decision on grounds that agency "turn[ed] a blind eye to errors and omissions" in DOE analysis on which EPA relied); *City of Tacoma v. FERC*, 460 F.3d 53, 75 (D.C. Cir. 2006) (agency's blind adoption of another agency's conclusions renders reliance arbitrary and capricious). Further, there is no basis for judicial deference to an agency's technical expertise or analysis, where the agency fails to base its decision on such expertise or analysis. Here, EPA staff attempted to evaluate the modeling based on the limited information they were provided, identified fundamental and pervasive flaws in the modeling, and on that basis rejected the modeling as adequate for policy decision making or standard setting.

For all these reasons, NCAT strongly urges EPA to conduct independent modeling and analysis in support of the final rule (including re-proposing or providing supplemental proposal or notice of data availability as needed). Further, NCAT encourages NHTSA to fully consider and address the issues identified by EPA staff with regard to the proposal and any subsequent modeling or analysis.

C. The Impact of Estimated VMT Changes in the Agencies' Analysis

One of the largest drivers in NHTSA's cost-benefit analysis is the massive projected reduction in vehicle miles traveled (VMT) attributed to the proposed roll-back of the standards, as compared with implementation of the current GHG standards and augural CAFE standards. Stated differently, and more accurately, the relevant driver is NHTSA's attribution of very large increases in VMT to the existing standards, relative to the proposed rollback.

Table 11-29 of the PRIA reflects NHTSA's estimate that VMT will increase under the existing standards (relative to the proposed rollback) by *2 billion to 113 billion miles each year*.

[91] *Available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453.

This appears to be a function of NHTSA's attribution to used vehicles of certain VMT schedules. While these numbers represent an increase of 0.1% to 3.4% of current U.S. VMT, the absolute annual numbers are large and the cumulative impact on VMT is staggering. From calendar year 2017 through 2050, NHTSA projects an increase under the existing standards of 2.653 trillion VMT when compared with the proposed rollback. The numbers are even larger for the CO_2 standards, reflected in Table 11-30, which shows a cumulative increase of 3.253 trillion VMT attributed to the existing standards as compared with the proposed rollback.

The projected change in VMT is attributed to two separate dynamics. One is the rebound effect, which refers to the degree to which people drive more as a result of the lower cost per mile of driving resulting from greater fuel efficiency. The rebound effect involves a voluntary consumer response to lower driving costs; this effect has consumer benefits that offset any private costs (*e.g.*, risks associated with more driving) and such impacts should not be attributed to the standards for purposes of economic analysis. The second cause of the large estimated decrease in VMT as a result of the agencies' proposed rollback appears to be an artifact of flaws in the modeling supporting the proposal, discussed below. There does not appear to be any empirical or theoretical justification for this component of the projected VMT decrease.

This projected reduction in VMT attributed to the proposed rollback of the standards has a number of major impacts on the agencies' analysis:

- Fatalities and Non-Fatal Injuries: The vast majority of the reduced fatalities (and non-fatal injuries) attributed to the rollback are the result of the projected reduction in VMT (from fleet turnover and rebound). Table 11-27 of the PRIA for example purports to present the projected change in total fatalities (and monetized costs of fatalities and non-fatal injuries) over the lifetime of MY 1977-2029 vehicles, presented at a 3% discount rate. NHTSA estimates that, under its proposed rollback, there will be 12,700 fewer fatalities from such vehicles over their lifetimes. Of these, 6340 are attributed to lower VMT associated with the rebound effect and 6180 are attributed to "sales impacts." As discussed below, the "sales impacts" are attributed to a combination of shifting some VMT from older to newer vehicles together with large, unexplained increases in overall VMT as a result of flawed fleet turnover modeling. Only 160 of the reduced fatalities are based on projected changes in vehicle mass attributed to the rollback. The non-rebound reductions in fatalities and non-fatal injuries from "sales impacts" account for over $88 billion in benefits attributed to the rollback. For the CO_2 standards, as reflected in Table 10-31, this number is over $111 billion.

- Fuel Consumption: The projected VMT reduction significantly reduces the projected loss in fuel savings (and associated consumer costs) resulting from the rollback. The NPRM projects that fuel savings under the existing CAFE and GHG standards is roughly half what they estimated in the 2016 draft Technology Assessment Report (TAR).[92] One recent analysis concludes that the agencies' projections regarding fleet

[92] 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), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF.

size and composition and related VMT changes explain "*almost the entire* reduction in fuel cost savings between the 2016 and 2018 analyses."[93] This effect is more significant than, for example, changes in projected gasoline prices between the 2016 analysis and the 2018 NPRM.

- Emissions and Other Externalities: The projected VMT reduction, as well as the transfer of VMT from older, dirtier vehicles (under the baseline current standards) to newer vehicles (under the agencies' proposed rollback) significantly reduces the projected impacts (and associated costs) of the rollback with regard to:
    - GHG emissions and associated climate impacts;
    - criteria and other conventional pollutant emissions and associated health and environmental impacts; and
    - traffic congestion and noise impacts.

The agencies' analysis is not sufficiently transparent to differentiate the precise impacts of the rebound effect and the scrappage-induced VMT increase on each of these elements. However, it appears that if the errors identified below were corrected, the agencies' proposal would be shown to result in significant net costs.

D. Fleet Turnover – New Vehicle Purchases and Scrappage

One of the central theses of NHTSA's analysis is that, by reducing projected costs of new vehicles, the agencies' proposal will increase sales of new vehicles relative to the baseline GHG and augural CAFE standards. NHTSA's new vehicle sales model projects that this will speed turnover in the fleet, reducing average vehicle age and increasing the safety, fuel economy and emissions performance of the average vehicle on the road. At the same time, NHTSA implements a "scrappage" model that estimates the rate at which used vehicles are scrapped or retained. Using this model, the agencies project that the existing baseline GHG and CAFE standards would increase the value of used vehicles, resulting in fewer used vehicles being scrapped; relative to this baseline, the agencies project that the proposed less stringent standards will result in significantly greater scrappage of older vehicles.

Although this conceptual framework may have some intuitive appeal, EPA staff raised the following objection:

> Academic and other researchers have developed a number of vehicle demand (consumer choice) models for the new and/or used vehicle markets to look at effects on sales and fleet mix. Rarely has there been any effort to validate these models, either for consistency across models, or for ability to predict out of sample. Recent academic research, as well

[93] Justine Huetteman and Joshua Linn, The Case of the Disappearing Fuel Cost Savings (Sept. 24, 2018), at http://www.rff.org/blog/2018/case-disappearing-fuel-cost-savings.

as work by EPA, has found that these models commonly perform worse, especially in the short run, than simply holding market shares constant.[94]

Further, a combination of flaws in NHTSA's new vehicle purchase model and its scrappage model, together with NHTSA's admitted failure to integrate the two models, resulted in the attribution to the proposal of massive reductions in VMT that are unaccounted for and unjustifiable. As EPA staff explained, "these models operate completely independently, and there is no mechanism within the CAFE model to reconcile the combined effects of the sales and scrappage models in order to produce a realistic total fleet of registered vehicles."[95]

Table 11-29 of the PRIA reports NHTSA's calculations of the fleet size, VMT, and estimated fatalities—under both the baseline (augural) CAFE standards and the preferred option—for each calendar year from 2017 through 2050. This table reflects NHTSA's projection that the existing standards will result in *decreased* new vehicle purchases (relative to the proposed rollback) each year due to higher costs, but the total fleet size will *increase* as a result of the existing standard by 1 million to 7 million vehicles per year—presumably due to reduced scrappage of used vehicles. During the rulemaking, EPA staff identified a 60:1 ratio of new vehicle sales decreases to fleet size increase, and pointed out that the projected increase was over 2% of the roughly 300 million vehicles in the fleet.[96]

EPA observed that the "effect of this error is to erroneously inflate the total VMT, and thus increase the estimated fatalities due to the Augural standards by many hundreds of lives."[97] Because NHTSA attributes certain fixed VMT schedules to these additional used vehicles in the fleet, without regard to underlying demand for driving, multiplication of the additional used vehicles in the fleet by their respective VMT schedules results in an artificial increase in overall projected VMT. NHTSA's analysis is not sufficiently transparent to discern what proportion of the VMT increase described above is attributable to NHTSA's modeling of fleet turnover versus the rebound effect, but it appears that the former may be responsible for at least half of this impact.

The agencies offer no empirical or theoretical support for these projected impacts. Indeed, one recent analysis by several economists concludes that the agencies' projection that (1) "the overall size of the vehicle fleet falls [under the rollback] even though new vehicle prices are lower," and (2) "households choose how many miles to drive their vehicles independently of the number of vehicles they own," are both "inconsistent with economics."[98] These experts state that they are "unaware of any real-world evidence" supporting the argument that "looser vehicle standards decrease the size of the on-road fleet and decrease total driving."[99] VMT is not purely a function of the number and age of vehicles in the fleet; rather, it is also a function of the

[94] Exhibit A (EPA Further Review of CAFE Model & Inputs, February 28, 2018, at 14).

[95] Exhibit A (EPA Further Review of CAFE Model & Inputs, June 18, 2018, at 4).

[96] *Id.* (EPA Further Review of CAFE Model & Inputs, June 18, 2018, at 5).

[97] *Id.* (EPA Further Review of CAFE Model & Inputs, June 18, 2018, at 5-6).

[98] Alan J. Krupnick, Joshua Linn, and Virginia McConnell, Questions about the Trump Administration's Cost-Benefit Analysis for its Proposal to Freeze the CAFE Standards (Aug. 20, 2018), http://www.rff.org/blog/2018/questions-about-trump-administration-s-cost-benefit-analysis-its-proposal-freeze-cafe.

[99] *Id.*

underlying demand for mobility. Even if loosening standards and lowering vehicle prices results in increased new vehicle sales and increased scrappage of older vehicles, one would expect any underlying VMT demand to shift from older vehicles to newer as a result—rather than a dramatic reduction in VMT as NHTSA projects.[100]

In addition, NHTSA's analysis suffers from another fundamental problem from the perspective of economic theory. With regard to the rebound effect, the NPRM and PRIA expressly state that "*[d]rivers who travel additional miles are assumed to experience benefits that at least offset the costs they incur in doing so*, including the increased safety risks they face. Thus while the number of additional fatalities resulting from increased driving is reported, the associated costs are not included among the social costs of the proposal."[101] The agencies attempt to draw a distinction, however, between VMT impacts associated with the rebound effect and those associated with fleet turnover/scrappage:

> Increased driving associated with rebound is a consumer choice. Improved CAFE will reduce driving costs, but nothing in the higher [*i.e.*, more stringent existing] CAFE standards compels consumers to drive additional miles. If consumers choose to do so, they are making a decision that the utility of more driving exceeds the marginal operating costs as well as the added crash risk it entails. Thus, while the predicted fatality impacts with all three factors [vehicle mass effects, fleet turnover/scrappage effects, and rebound effects] embedded into the model are measured, the fatalities associated with consumer choice decisions are accounted for separately from those resulting from technologies implemented in response to CAFE regulations or economic limitations resulting from CAFE regulation. Only those safety impacts associated with mass reduction and those resulting from higher vehicle prices are directly attributed to the CAFE standards. . . .
>
> It could be argued fatalities resulting from consumer's [sic] decision to delay the purchase of newer safer vehicles is also a market decision implying consumers fully accept the added safety risk associated with this delay and value the time value of money saved by the delayed purchase more than the risk. This scenario is likely accurate for some purchasers. For others, the added cost may represent a threshold price increase effectively preventing them from being financially able to purchase a new vehicle. We have no way to determine the proportion of lost sales affected by these two scenarios. . . . [T]he effect of retaining older vehicles longer results from costs imposed on consumers, which potentially limit their purchase options. We, thus, attribute fatalities from retaining older vehicles to CAFE, but not those resulting from their decisions to drive more.[102]

We disagree with this approach. To the extent that more stringent CAFE or GHG standards result in price increases, this presents consumers with a choice between purchasing

---

[100] *See*, *e.g.*, Alan J. Krupnick, Joshua Linn, and Virginia McConnell, Critiquing the Trump Administration's Analysis of Consumer Behavior in the Proposed CAFE Standards (Sept. 17, 2018), at http://www.rff.org/blog/2018/critiquing-trump-administration-s-analysis-consumer-behavior-proposed-cafe-standards.

[101] PRIA at 1342 n.844 (emphasis added).

[102] 83 Fed. Reg. at 43107; PRIA at 1341 & n. 843.

new, more efficient vehicles and continuing to drive older, less efficient vehicles. Consumer purchases are voluntary and this effect should not be attributed to the standards.

But even if the agencies were correct that safety impacts resulting from *consumer decisions to delay purchase of new vehicles* should not be attributed to the standards, that argument would not apply to the agencies' projection that consumers *drive more miles as a result of delaying such purchases* (because of increased fleet size and fixed VMT schedules). The exact same logic that the agencies apply to the rebound effect would apply equally to *any increased VMT* related to consumers' decisions to drive more miles as an (unexplained) result of fleet turnover effects. In the agencies' own words, they should not attribute to the standards fatalities and other safety impacts "*resulting from [consumers'] decisions to drive more.*"[103]

As explained above, there is no basis to conclude that drivers will drive more simply because they keep older vehicles instead of buying newer ones. But if they *did* do so, this would reflect a voluntary consumer determination that the benefits of driving vehicles more miles outweighed the costs (notably increased fatalities and non-fatal injuries). Accordingly, even if NHTSA could justify its projected VMT reduction from the standards (which it cannot), it should not attribute any benefit to this (made-up) reduction. Based on the agencies' own logic, such purported benefits should be stricken from the cost-benefit analysis, because they would be logically canceled out by corresponding consumer costs from lost mobility, etc. By the same token, neither should the agencies premise any determination of "maximum feasible" fuel economy or appropriate standards under CAA Section 202(a) on these purported VMT benefits.

In addition to these larger issues, there are a number of subsidiary problems with NHTSA's approach to fleet turnover and VMT. For example, in its analysis of effects on new vehicle purchases, NHTSA appears to focus on the impacts of higher or lower vehicle costs without taking into account the differences in the attributes of the underlying vehicles themselves.[104]

Further, we note that NHTSA's application of the fleet turnover and scrappage model appears to be inconsistent with its approach to safety regulation more generally. In the past five years, NHTSA has established or modified 10 separate Federal Motor Vehicle Safety Standards (FMVSS). While NHTSA has routinely examined the cost and benefits of such rules, and the length of time for fleet implementation, it has never considered whether additional cost will reduce fleet turnover that could prevent benefits from unknown future safety improvements. Rather, NHTSA's focus been on analyzing the costs of such vehicle safety equipment compared to the quantifiable life savings and injury savings. In conducting this analysis, NHTSA has repeatedly considered the fleet saturation rate and the timeline for achieving complete fleet compliance through new vehicle purchases and fleet turnover. NCAT points out this inconsistency not to undermine the safety standards, but rather to underscore the agency's seemingly arbitrary decision to apply its fleet turnover modeling to the current CAFE rulemaking

[103] *Id.* (emphasis added).

[104] Alan J. Krupnick, Joshua Linn, and Virginia McConnell, Critiquing the Trump Administration's Analysis of Consumer Behavior in the Proposed CAFE Standards (Sept. 17, 2018), at http://www.rff.org/blog/2018/critiquing-trump-administration-s-analysis-consumer-behavior-proposed-cafe-standards.

and only this rulemaking. NCAT urges NHTSA to adopt an approach here that is in line with its traditional approach.

E. Rebound Effect

The second significant factor impacting the agencies' estimates of VMT is the rebound effect. The agencies conclude that the literature supports a 20% elasticity of demand for light-duty vehicle travel, suggesting that a 5% reduction in the cost per mile of travel for a given vehicle body style will result in a 1% increase in annual VMT. The agencies' adoption of a 20% rebound effect represents a departure from the 10% effect used in the MY 2012-2016 and MY 2017-2025 standards. The agencies justify this departure based on a high-level summaries of 27 studies prior to 2008 and 16 studies dated 2009 or later. The primary rationale for the agencies' decision is that a 20% value reflects the universe of research on the magnitude of the rebound effect, as indicated by the numbers recorded by the agencies for various studies. *See* 83 Fed. Reg. at 43104; PRIA Section 8.9.7.

This approach—of counting all studies equally and averaging them—is not a valid basis on which to select the magnitude of the rebound effect. The agencies' analysis fails to make any differentiation among the reported studies. In the course of the rulemaking, EPA staff emphasized that:

- "Results from individual states are unlikely to be representative of national, U.S. rebound estimates"
- "Even well executed U.S. studies using single year data, particularly from the NHTSA 2009 time period with the onset of the Great Recession, have difficulties in providing reliable estimates of the U.S. rebound effect"
- "Even well executed international studies do not provide reliable estimates of the U.S. rebound effect, as the U.S. has different travel patterns from other countries due to a variety of factors."

EPA staff therefore recommended that greater weight be given to U.S. nationwide studies over state or international studies, to studies measuring driving response to fuel economy rather than fuel price/costs, to recent studies (in the last decade) rather than older studies, to studies with a strong statistical/methodological basis, and to studies based on time series data instead of single year data. They concluded that studies meeting these criteria identify a rebound rate lower than 20%.[105]

NCAT urges the agencies to adopt EPA's recommended approach and to revert to the 10% rebound effect reflected in recent rulemakings. Further, regardless of the magnitude selected, as explained above, the agencies themselves acknowledge that they should not attribute consumer decisions to drive more to the standards themselves. Accordingly, any impacts attributable to rebound should not be reflected in the cost-benefit analysis for the rulemaking.

[105] Exhibit A (Appendix: Update on LDV Rebound 4/16/2018).

More important, neither should they be considered in determining what are "maximum feasible" fuel economy standards under EPCA nor appropriate GHG standards under CAA Section 202(a).

F. Vehicle Technology Cost Estimation

In addition to the fleet turnover (and related VMT) impacts discussed above, the other major element driving the agencies' analysis is their estimation of the cost of technologies required to meet the standards. These costs have at least three major impacts. First, they affect the agencies' assessment of overall consumer costs attributed to the standards (which the agencies estimate at over $255 billion). Second and relatedly, vehicle costs affect the agencies' consideration of affordability considerations. And third, they are an input in NHTSA's sales effect and scrappage models, with higher estimated costs driving reduced new vehicle sales and reduced scrappage of older vehicles.

As explained in Section III.A above, NCAT takes specific issue with the agencies' vehicle technology cost estimates for EV and battery technologies. In addition, as set forth below, since the agencies' most recent analyses of estimated costs in 2016 and 2017, their estimated per vehicle cost of achieving compliance with the MY 2025 standards has more than doubled, increasing from roughly $1017 to $2340.[106] This inflation of projected technology costs does not appear to be attributable primarily to the projected cost of any given technology, but rather to modeling constraints on the application of such technologies to vehicles. Many of these constraints appear to be arbitrary and NHTSA's departure from prior analyses in these respects is not adequately supported.

1. Recent Analyses

In the TAR concluded in 2016, NHTSA and EPA (in cooperation with CARB) conducted an exhaustive review of vehicle technology availability and related costs. They reached the following conclusions:

- "A wider range of technologies exist for manufacturers to use to meet the MY2022-2025 standards, and at costs that are similar or lower, than those projected in the 2012 rule;
- Advanced gasoline vehicle technologies will continue to be the predominant technologies, with modest levels of strong hybridization and very low levels of full electrification (plug-in vehicles) needed to meet the standards;
- The car/truck mix reflects updated consumer trends that are informed by a range of factors including economic growth, gasoline prices, and other macro-economic trends. However, as the standards were designed to yield improvements across the

[106] In the Draft TAR, the agencies concluded that "the average per vehicle costs to meet the MY 2025 standards in MY 2025 (compared to meeting the MY 2021 standards in MY 2025) is between $894 and $1017." Draft TAR at 12-14. In the January 2017 MTE Final Determination, EPA concluded that the average per vehicle costs of meeting the standards are $875. January 2017 MTE Final Determination at 20. In the NPRM, the agencies conclude that the proposed rollback of the standards results in a cost savings of $2340 per vehicle.

light duty vehicle fleet, irrespective of consumer choice, updated trends are fully accommodated by the footprint based standards."[107]

In the January 2017 Mid-Term Evaluation Final Determination, EPA determined that the existing standards remained appropriate under CAA Section 202(a), relying on the Draft TAR, the National Academy of Sciences' 2015 study of the cost, effectiveness and deployment of fuel economy technologies, and extensive technical analysis.[108] EPA concluded that the existing standards are feasible at reasonable cost and provide adequate lead time to manufacturers. The agency's findings included the following:

- Compliance with the existing standards can be achieved through a number of different technology pathways primarily reflecting application of technologies already in commercial production.[109]

- The standards can be met largely through advances in gasoline vehicle technologies, requiring only very low levels (2-3 percent) of penetration of strong hybrids and EVs (plug-in and battery EVs) to meet the standards.[110]

- Estimated per vehicle costs for complying with the MY 2025 standards are in the range of $875, considerably lower than the $1,100 per vehicle costs EPA estimated and found reasonable at the time it adopted the standards in 2012.[111]

- Given the rapid pace of industry innovation, there are and will continue to be emerging technologies available in the MY 2022-2025 time frame that could perform appreciably better and at potentially lower cost than the technologies in EPA's assessment.[112]

- Lead time for the standards is adequate, given that EPA first established the standards in 2012—13 years before the MY 2025 standards—and the demonstrated pace of industry innovation in meeting and exceeding the standards.[113]

[107] 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 at ES-2 (July 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF.

[108] EPA, Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (Jan. 2017), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf (Jan. 2017 MTE Final Determination).

[109] *Id.* at 3-4, 18.

[110] *Id.* at 3-5, 12, 18, 24, 25.

[111] *Id.* at 4, 24.

[112] *Id.* at 4, 23-24.

[113] *Id.* at 22-24.

In March 2017, CARB completed its own Mid-Term Review, upholding the appropriateness of the state's Advanced Clean Cars Program regulations.[114] CARB concluded in relevant part:

- Manufacturers are over-complying with the GHG standards and over 1300 conventional vehicle model configurations already meet 2020 or later GHG standards with a conventional gasoline powertrain.[115]

- Current MY 2022-2025 standards can be readily met at the same or lower cost than originally projected when the standards were adopted in 2012, predominantly with gasoline engines and transmission technologies.[116]

- Battery technology has improved and battery and EV costs are falling dramatically (due to reduced material costs, manufacturing improvements, and higher manufacturing volumes). EV offerings are expanding and will have greater range and higher power.[117]

ICCT also conducted an independent analysis, concluding that the existing standards could be met at lower cost than originally projected. ICCT's analysis reached the following conclusions:

- Conventional engine and vehicle technologies can cost-effectively provide 8-10 percent greater efficiency improvements than is reflected in the most recent EPA analysis, that conventional technologies (without substantial reliance on electrification) could achieve the current MY 2022-2025 standards, and that compliance costs for the existing MY 2025 standards will be 34-40 percent lower than projected by EPA in its January 2017 MTE analysis.[118]

- Primarily because of rapid developments in battery pack technologies, EV costs will be reduced by $4,300-$5,300 of dollars per vehicle by 2025 compared to EPA estimates in support of the MY 2017-2025 standards. ICCT concludes that battery costs of $140/kWh is a realistic estimated value by 2025, as compared with EPA estimates of $180-200/kWh.[119]

2. Unjustified Constraints in NHTSA Modeling

[114] *See* CARB, Resolution 17-3, "Advanced Clean Cars Midterm Review" (Mar. 24, 2017) at 15-17, *available at* https://www.arb.ca.gov/msprog/acc/mtr/res17-3.pdf; *see also* CARB, MTR Technical Report, supra *note* 69 at ES-3–ES-9.

[115] CARB, MTR Technical Report, *supra* note 69 at ES-2.

[116] *Id.* at ES-5.

[117] *Id.* at ES-3, ES-6, ES-41.

[118] ICCT, "Efficiency Technology and Cost Assessment for U.S. 2025-2030 Light-duty Vehicles" (Mar. 2017) at iv, *available at* http://www.theicct.org/US-2030-technology-cost-assessment.

[119] *Id.* at 11, 15.

As detailed above, the NPRM and PRIA estimate the incremental costs of meeting the current GHG and augural CAFE standards to be more than double what the agencies projected just two years ago ($2340 versus $1017). Real-world changes in the availability or cost of vehicle technologies cannot explain this change. Rather, it appears to be largely an artifact of unjustified constraints imposed by NHTSA on the Volpe model.

The record does not transparently describe these constraints in a manner that readily enables comment, but some prominent examples EPA staff highlighted during the course of the rulemaking include the following:

- The model significantly constrains the application of certain technologies that are already in use. For example, at least two manufacturers currently are making significant use of Atkinson Cycle engines with high geometric compression ratios, which provide a cost-effective pathway for reducing fuel consumption. The CAFE model artificially constrains application of this technology, resulting in significantly increased estimated costs.

- The technology "packages" available for consideration as inputs to the CAFE model do not include some significant technology combinations that are available in production vehicles today. For example, some current vehicles use Atkinson Cycle engines with cylinder deactivation, and NHTSA and EPA's 2016 Draft TAR included a package combining these technologies. The modeling supporting the proposal, however, does not allow this technology combination.

- NHTSA's estimate of the cost of Dynamic Cylinder Deactivation is 2-4 times higher than industry-quoted costs for the version of the technology that is going into production in MY 2019.

- NHTSA has adopted a modeling methodology that limits a manufacturer's ability to transition to an alternative technology, even if that technology is a more cost-effective solution. For example, NHTSA assumes that a vehicle that is currently equipped with a turbo charged engine must remain turbo charged, even in the case of electrification to a hybrid vehicle. (This results, for example, in the model estimating costs for a turbo-charged hybrid, instead of a hybrid with Atkinson Cycle engine, which is much more cost-effective and likely to be implemented in the real world).

- As noted in Section III.A, above, and in the EPA comments attached, NHTSA appears to have significantly overestimated the costs of batteries and application of electrification to vehicles.

- The CAFE model appears to artificially constrain credit values at zero for technologies that reduce a vehicle's CO_2 *below* its compliance target, regardless of how cost effective that technology might be. This does not make sense because over-compliance with the standard results in credit generation that allows greater flexibility for other vehicles in the manufacturer's fleet. The result of this constraint is to significantly undervalue the cost-effectiveness of certain technologies and artificially inflate estimated technology costs. It is unclear whether this constraint applies equally

to the model's estimation of fuel economy (as opposed to CO_2), but the same logic would apply there.

- For the GHG standards, the CAFE model appears to preclude credit trading between the passenger vehicle and light-duty truck fleets. While there are some statutory constraints on the magnitude of inter-category trading under EPCA, these constraints do not apply to the CAA GHG standards. Any constraints should accurately reflect the precise EPCA constraints for the CAFE standards and the absence of such constraints for the GHG standards.

This is not an exhaustive list, but rather a compilation of some of the biases EPA staff identified in NHTSA's model design. Collectively, these biases appear to account for the substantial increases in NHTSA's technology cost estimates between the 2016 Draft TAR and the NPRM. NCAT incorporates by reference the comments provided by EPA staff (and attached as Exhibit A) as comments on the proposed standards and urges the agencies to make corrections to address these and related issues.

G. Air Quality Impacts, Regulatory Burden Shifting, and the Social Cost of Carbon

Table 4.2.3-1 of the DEIS reflects that the proposed rollback of the standards will result in as many as 299 premature deaths and 16,819 lost days of work by 2050 as a result of increased emissions of non-GHG air pollutants. These additional deaths and other adverse health impacts do not appear to be factored into the agencies' analysis of total fatalities or other costs of the proposal. Further, as noted above, the agencies' erroneously inflated estimates of the VMT impacts of the proposal result in a significant underestimate of the GHG and non-GHG emissions impacts of the proposal—suggesting that they also significantly underestimate air quality-related fatalities and other adverse health impacts.

In addition, by increasing transportation sector emissions of non-GHG air pollutants, the proposal has the effect of shifting regulatory burdens to other sectors, including electric utilities. In many areas of the country, transportation accounts for a substantial proportion of criteria pollutant emissions. EVs and other clean vehicle technologies provide a critical and cost-effective means of achieving compliance with NAAQS and related regulatory requirements. By increasing air pollution emissions and undermining state regulatory authority to drive the deployment of ZEVs and clean vehicles, the agencies' proposal has the effect of shifting burdens to meet air quality requirements from the transportation sector to other sectors. The agencies fail to acknowledge or analyze this dynamic in the NPRM or PRIA, and should do so.

Finally, the agencies' cost-benefit analysis relies on much lower estimates of the social cost of carbon than were applied when the standards were adopted, resulting in a significant reduction in the estimated costs of the proposed rollback. The reduced estimate of the social cost of carbon is largely attributable to the agencies' limitation of the estimate to domestic impacts and their adoption of 3% and 7% discount rates (significantly higher than the lower rates previously applied for intergenerational effects). As other commenters will address in greater detail, NCAT views these revisions to the social cost of carbon as inappropriate and unjustified.

V. NHTSA'S PROPOSED STANDARDS ARE NOT "MAXIMUM FEASIBLE" AS REQUIRED BY EPCA

A. EPCA Requirements

Under EPCA, as amended by the Energy Independence and Security Act (EISA), NHTSA is required to establish CAFE standards reflecting the "maximum feasible" average fuel economy level for each model year. 49 U.S.C. § 32902(a). In setting "maximum feasible" standards, NHTSA must *consider* four factors: "technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy." 49 U.S.C. § 32902(f). These factors are not independent statutory standards, but rather are "considerations" that inform the identification of maximum feasible standards. In applying these considerations, therefore, NHTSA must make clear why any consideration that militates for less stringent standards makes more stringent standards infeasible.

Regardless of how NHTSA weights these factors, the agency is prohibited from doing so in a manner at odds with EPCA's overarching purpose—energy conservation. *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1197-98 (9th Cir. 2008). Courts have held, for example, that "NHTSA may consider consumer demand, but 'it would clearly be impermissible for NHTSA to rely on consumer demand to such an extent that it ignored the overarching goal of fuel conservation.'" *Id.* at 1205 (quoting *Ctr. for Auto Safety v. NHTSA*, 793 F.2d 1322, 1340 (D.C. Cir. 1986)). Furthermore, "NHTSA has considered environmental issues, both within the context of EPCA and the National Environmental Policy Act, in making decisions about the setting of standards from the earliest days of the CAFE program." 83 Fed. Reg. at 43211; *see also Ctr. for Auto. Safety*, 793 F.2d at 1325 n.12; *Public Citizen v. NHTSA*, 848 F.2d 256, 262-63 n.27 (D.C. Circ. 1988) (noting that "NHTSA itself has interpreted the factors it must consider as including environmental effects").

B. NHTSA's Analysis Is Inconsistent With EPCA's Requirements

1. NHTSA's Application of EPCA Is Inextricably Premised on Its Flawed Modeling and Analysis

NHTSA's determination of "maximum feasible" CAFE standards is inextricably bound to the modeling and analysis addressed in Sections III and IV above. Throughout its "maximum feasible" determination, NHTSA relies on the erroneous results of its modeling with regard to avoidance of fatalities and non-fatal injuries, technology costs, and estimated costs and benefits generally . This is especially true with regard to NHTSA's analysis of vehicle safety, upon which the agency relies very heavily in making its "maximum feasible" determination. In order to reach a reasoned determination of "maximum feasible" CAFE standards, NHTSA must correct the defects in the modeling and analysis underpinning that determination. Again, NCAT requests that NHTSA issue corrected modeling, together with any resulting adjustments to its CAFE proposal, through a supplemental notice of proposed rulemaking or notice of data availability that provides NCAT and other commenters with adequate notice and opportunity to comment.

2. "Maximum Feasible" Imposes Requirements Independent of the Four Factors for Consideration

In proposing standards in the NPRM, NHTSA wrongly equates the meaning of "maximum feasible" standards with the four factors EPCA requires the agency to consider. These four factors are relevant *considerations* in identifying what is "maximum feasible," but they do not themselves fully determine or define the meaning of the term "maximum feasible." Rather, "maximum feasible" has independent meaning. It means the greatest level of fuel economy that is "feasible"—meaning "capable of being done or carried out."[120] The four factors are relevant considerations only to the extent each affects the maximum level of fuel economy that can be achieved.

As set forth below, NHTSA's analysis of the four factors is flawed in several respects. But even if NHTSA's analysis *of the factors* were reasonable, the option it proposes—freezing CAFE standards at MY 2020 levels through MY 2026, with *no improvement over six years*—plainly is not the "maximum feasible" fuel economy. Since 2005, CAFE standards have increased on average by 2 to 2.5% per year.[121] On its face, the proposal represents an unreasonable and impermissible interpretation of EPCA. In light of the record before the agency, the existing MY 2021 and the augural MY 2022-2025 standards remain the "maximum feasible." NHTSA acknowledges that the augural standards are technologically feasible and would provide superior energy conservation. The agency effectively ignores these factors, however, and relies exclusively on inappropriate treatment of economic practicability and safety as the basis for proposing "do-nothing" standards.

3. NHTSA Concedes Technological Feasibility Is Not a Constraint

NHTSA interprets "technological feasibility" to include technologies for improving fuel economy that can become available for commercial application in the future in the model year for which the standard is established. 83 Fed. Reg. at 43208. Therefore, CAFE standards can and should be technology-forcing, given the timeframe of this rulemaking several years into the future—especially in light of EPCA's overarching purpose of energy conservation.

NHTSA concedes that "technological feasibility, *per se*, is not limiting during this rulemaking timeframe. The technologies considered in this analysis either are already in commercial production or likely will be by MY 2021 . . . . [A]ll of the alternatives appear as though they could narrowly be considered *technologically* feasible, in that they could be achieved based on the existence or the projected future existence of technologies that could be incorporated on future vehicles." 83 Fed. Reg. at 43216. NHTSA accordingly does not purport to base its proposed "maximum feasible" determination on technological feasibility at all. It acknowledges the augural standards are technologically feasible but declines to adopt them based exclusively on other factors.

---

[120] Merriam Webster Dictionary, "Definition of Feasible," https://www.merriam-webster.com/dictionary/feasible (last visited Oct. 23, 2018).

[121] *See* Letter of Senator Carper to Secretary Chao and Acting Administrator Wheeler (Oct. 16, 2018), at https://www.epw.senate.gov/public/_cache/files/e/6/e66d6d50-e3c5-42c1-9663-c1ea1d2215dc/3752E5E73547A5D722D1BEADA0E69405.10.16.2018-cafe.pdf.

4. NHTSA's Proposal Fails to Prioritize or Meaningfully Consider Conservation of Energy

In determining what standards are "maximum feasible," and in determining what respective weights to give each of the four statutory factors, NHTSA's discretion is limited by EPCA's fundamental statutory purpose: energy conservation. *See Ctr. for Biological Diversity*, 538 F.3d at 1205; *Ctr. for Auto Safety*, 793 F.2d at 1338 (NHTSA may consider consumer demand but not "to such an extent that it ignored the overarching goal of fuel conservation"). NHTSA therefore must prioritize conservation of energy, deviating only to the extent that greater efficiency is not feasible, considering the other three factors as appropriate.

In light of the dominant importance of energy conservation under EPCA, NHTSA's proposal is unreasonable and inconsistent with the statute. As compared with the augural standards, the proposal would increase oil consumption by roughly half a million barrels per day. NHTSA estimates that the impact on consumers is over $152 billion in lost fuel savings. Those numbers are both proportionally and absolutely large. The NPRM states that the 500,000 barrel-per-day increase would be equivalent to 2-3% of the United States' total daily fuel consumption. 83 Fed. Reg. at 42986. But it also indicates that annual fuel consumption would increase by over 9% by 2035 as a result of the proposal. *Id.* at 43327 (Table VII-75). And it shows a cumulative change in fuel consumption of over 73 billion gallons. *Id.* at 43328 (Table VII-76). Further, these numbers significantly underestimate the increase in fuel consumption that actually would result from the proposed rollback because of NHTSA's overestimation of the VMT benefits of its proposal (see Section IV, above).

NHTSA interprets EPCA's reference to "the need of the United States to conserve energy" to mean "'the consumer cost, national balance of payments, environmental, and foreign policy implications of our need for large quantities of petroleum, especially imported petroleum.'" 83 Fed. Reg. at 43210 (quoting 42 Fed. Reg. 63188 (Dec. 15, 1977)).. Further, the agency construes "conserve" to mean "to keep in a safe or sound state; especially to avoid wasteful or destructive use of." 83 Fed. Reg. at 43213 (citing Merriam-Webster online dictionary). The agency takes the position that energy conservation is should no longer be a dominant or decisive factor in setting standards under EPCA, because of increases in domestic oil production, reductions in oil imports, lower projected increases in future oil prices and price volatility, and (ironically) greater availability of more fuel efficient vehicles. *Id.* at 43213-15. While these dynamics may be relevant to "the need of the United States to conserve energy," NHTSA's analysis would effectively write EPCA's "overarching purpose" entirely out of the statute on this basis. That is unreasonable and is not a permissible interpretation of EPCA.

Moreover, the Energy Information Administration's (EIA) Annual Energy Outlook 2018 (AEO 2018) Reference case, net exports peak at 3% in 2037 before reversing as domestic consumption rises, and the U.S. returns to being a net petroleum importer in 2045.[122] Importantly, those projections include continued application of existing GHG and augural CAFE standards; under the proposed rollback, domestic consumption would increase and this reversal in net importer/exporter status presumably would occur earlier. Light duty vehicles account for

[122] AEO 2018 at 54.

by far the largest share of transportation energy consumption and of petroleum.[123] Even if the United States becomes a net exporter of oil, it will continue to both import and export oil, and the level of domestic oil consumption—largely driven by light-duty vehicles—will still directly impact the balance of imports versus exports and the balance of payments.[124]

Further, as NHTSA itself recognizes "changes in U.S. oil intensity, production, and capacity cannot entirely insulate consumers from the effects of price shocks at the gas pump . . . ." 83 Fed. Reg. at 43214. In AEO 2018's Reference case, prices are projected to continue to rise between 2018 and 2050. AEO 2018 acknowledges a range of uncertainty with regard to future prices—with 2050 price projections ranging from $2.45/gallon to $5.95/gallon.[125] Indeed, fuel prices have risen considerably even since the beginning of the current Administration. The projected consumer costs associated with NHTSA's proposal are large: over $152 billion in increased fuel costs due to the proposed rollback. But again, this is an underestimate of the actual impacts because of the VMT issues discussed above.

NHTSA acknowledges that it must consider environmental impacts as an element of the need to conserve energy. 83 Fed. Reg. at 43211; *Ctr. for Auto. Safety*, 793 F.2d at 1325 n.12; *Public Citizen*, 848 F.2d at 262-63 n.27. The agency appears to recognize that its proposal will have adverse impacts on the environment—including increased GHG and non-GHG pollutant emissions—but ultimately dismisses this concern because the incremental impact of the proposal in increasing GHG emissions (and thus on climate change impacts) is small relative to overall global emissions and projected global climate impacts. 83 Fed. Reg. at 43215-16. Importantly, in its EPCA energy conservation analysis NHTSA's fails to address increased non-GHG pollutant impacts from the proposal—which, as discussed above, include 299 fatalities from air quality impacts by 2050. Further, as noted above, the flaws in NHTSA's modeling (especially with regard to VMT changes) are such that it has significantly underestimated the GHG and non-GHG air pollution emissions impacts of its proposal.

In addition, NHTSA's fundamental approach with regard to GHG emissions and climate change is unsound. The most recent evidence and analysis with regard to climate change is that the planet is rapidly approaching a tipping point. If substantial reductions in GHG emissions are not achieved within the next decade, it will become increasingly difficult to avoid catastrophic impacts to human health and the environment.[126] In this context, the notion that large absolute impacts on GHG emissions should be disregarded because they are not a large percentage of total global emissions is based on flawed logic. NHTSA projects that its proposal will increase GHG emissions by 872 million metric tons (CO_2 equivalent) over the lifetime of the relevant vehicles; though, here again, this is a significant underestimate because of the modeling flaws discussed above. Multiplying the emissions impacts of NHTSA's proposal by the social cost of

---

[123] According to the DEIS, in 2016 passenger cars and trucks accounted by 56 percent of transportation energy consumption, and the transportation sector accounted for 78.2 percent of total U.S. petroleum consumption. DEIS at 3-7 to 3-8.

[124] *See*, *e.g.*, AEO 2018 at 24 (Feb. 6, 2018) ("The United States remains both an importer and exporter of petroleum liquids, importing mostly crude oil and exporting mostly petroleum products such as gasoline and diesel through 2050 in the Reference Case."), at https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.

[125] AEO 2018 at 58.

[126] *See* IPCC, *Global Warming of 1.5°C – Summary for Policy Makers* (Oct. 6, 2018), http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

carbon (SCC) helps to give a better sense of the magnitude of the impact. Even under the inappropriately constrained SCC applied by the agencies, coupled with the underestimate of resulting emissions, the increased emissions resulting from the proposal would impose over $4 billion in incremental damages. Applying the more appropriate SCC used in the prior Administration and a more accurate estimate of the emissions impacts, the damages attributable to the proposal would be over an order of magnitude greater.

NHTSA's approach is a self-fulfilling prophesy: Because no single action can achieve a large proportional impact on global climate change, the agency argues, no effort to reduce emissions is material or worthy of being taken—hence impacts will increase and the incremental effect of any actions will be yet further reduced. This is false logic that should be rejected; it is arbitrary and capricious and is not a reasonable or permissible interpretation of the "need of the United States to conserve energy" under EPCA.

For all these reasons, the need to conserve energy is not limited to reducing oil imports and is not obviated, or even significantly diminished, by current or projected changes in oil markets. Where more efficient technology is available and economically practicable (meaning that it can be deployed without "adverse economic consequences, such as a significant loss of jobs or the unreasonable elimination of consumer choice"), failure to employ such technology results in unnecessary or wasteful consumption of the resource. This includes more rapid consumption of a scarce and finite domestic resource, increased costs to consumers, adverse impacts on the balance of payments, and adverse environmental impacts, among others.

5. NHTSA's Analysis of Economic Practicability Is Improper

NHTSA interprets the "economic practicability" factor as referring to "whether a standard is one within the financial capability of the industry, but not so stringent as to lead to adverse economic consequences, such as a significant loss of jobs or the unreasonable elimination of consumer choice." 83. Fed. Reg. at 43208 (internal quotations and citations omitted). NHTSA states in the NPRM that it "believes there could be potential for unreasonable elimination of consumer choice, loss of U.S. jobs, and a number of adverse economic consequences under nearly all if not all of the regulatory alternatives considered today." *Id.* at 43216. There is no record basis for this conclusory statement.

In fact, remarkably, NHTSA's own analysis projects that *the proposal will result in the loss of 50,000-60,000 job years* each year from 2021-2029.[127] That projection is directionally consistent with other recent analyses indicating that the existing fuel economy and GHG standards support substantial domestic job creation. A recent study by Synapse Energy Economics, for example, concludes that the existing standards will result in 100,000 added jobs in 2025 and over 250,000 added jobs in 2035. The same study projects that existing standards increase U.S. GDP by over $13 billion in 2025 and over $16 billion in 2035.[128] Jobs impacts

[127] 83 Fed. Reg. at 43265 (Table VII-5).

[128] Avi Allison, Jamie Hall, Frank Ackerman, Synapse Energy Economics, Inc., Cleaner Cars and Job Creation: Macroeconomic Impacts of Federal and State Vehicle Standards (Mar. 27, 2018), at http://www.synapse-energy.com/sites/default/files/Cleaner-Cars-and%20Job-Creation-17-072.pdf.

accordingly appear to cut in favor of *retaining* existing GHG standards and the augural CAFE standards, and to undermine the case for the proposed rollback.

Notably, NHTSA does not argue that achievement of the standards is not within the financial capability of the industry, nor would there be any support for such an argument in the record. Further, as we argue in Section III, above, the industry and global markets are moving decisively in the direction of EVs. Strong U.S. standards therefore are critically important to maintaining U.S. global competitiveness.

NHTSA's "economic practicability" arguments appear to be based almost exclusively on vague generalizations and speculation about consumer preferences. "*If* a potential CAFE standard requires manufacturers to add technology to new vehicles that consumers do not want, it would *seem* to present issues with elimination of consumer choice. Depending on the extent and expense of required fuel saving technology, that elimination of consumer choice *could be* unreasonable." 83 Fed. Reg. at 43216 (emphasis added). NHTSA states that consumers "generally tend not to be interested in better fuel economy above other attributes, particularly when gasoline prices are low." *Id.* at 43217. The agency argues that lack of consumer interest could dampen sales of vehicles with the technology required to meet the standards, and that manufacturers will need to subsidize sales of vehicles with higher fuel economy, especially hybrids, EVs, and PHEVs—for which NHTSA states demand is low. *Id.* at 43217-18. Finally, NHTSA argues that this will result in adverse impacts on vehicle affordability, especially for low-income or credit-challenged consumers. *Id.* at 43222.

These statements are unsupported by the record and do not provide a valid basis for reducing CAFE standards from the augural levels, let alone freezing them at MY 2020 levels for six years. Again, the courts have made clear that while consumer acceptance may be a relevant consideration in setting CAFE standards, NHTSA cannot use it to override EPCA's overarching goal of energy conservation. *Ctr. for Biological Diversity*, 538 F.3d at 1205; *Ctr. for Auto Safety*, 793 F.2d at 1338. That is precisely what NHTSA has proposed to do here. Further, recent consumer surveys emphasize that consumers value fuel economy and want manufacturers to provide more fuel efficient vehicles and more options.[129] In addition, as set forth in Section III, above, consumer demand for EVs in particular is growing and is expected to continue to rise as auto manufacturers dramatically expand the number and types of vehicle offerings and battery range, and as costs continue to decline relative to internal combustion engine vehicles. Finally, the agencies' concerns about consumer acceptance and consumer choice appear to be inextricably linked with their flawed analysis of technology costs (discussed in Section IV).

6. NHTSA Incorrectly Interprets "Other Standards of the Government"

Finally, EPCA expressly requires NHTSA to consider "the effect of other motor vehicle standards of the Government on fuel economy." 49 U.S.C. § 32902(f). Contrary to NHTSA's arguments in the NPRM, this includes not only EPA motor vehicle emission standards under the CAA (including GHG standards currently in effect), but also state motor vehicle emission

[129] *See*, *e.g.*, Consumer Reports, 2018 Automotive Fuel Economy Survey (July 2018) (finding that 38% of American car owners surveyed value fuel economy as a top aspects of their current vehicle that has the most room for improvement), at https://consumersunion.org/wp-content/uploads/2018/07/2018-Fuel-Economy-Survey-Fact-Sheet-1.pdf.

standards for which preemption has been waived under CAA Section 209(b). *See, e.g.*, NHTSA, Final Rule: Average Fuel Economy Standards for Light Trucks Model Years 2008-2011, 71 Fed. Reg. 17,566, 17,643 (Apr. 6, 2006) (CARB emission standards discussed in section X.D. entitled "Federal Motor Vehicle Emission Standards"). Accordingly, these "other motor vehicle standards of the Government" include California's and other States' Advanced Clean Cars Program regulations, including LEV III GHG standards and ZEV standards—which have the effect of increasing fuel economy and indicate "feasible" levels of fuel economy. EPCA requires NHTSA to consider these state emission standards in identifying what is the "maximum feasible" fuel economy for these model years. NHTSA's failure to do so in the proposal is contrary to the statute and should be reversed.

C. NHTSA Should Not Amend the Existing MY 2021 Standards

In addition to the broader arguments set forth above, NCAT specifically urges NHTSA not to revise the existing MY 2021 standards. First, NHTSA's previous determination that the MY 2021 standards are the "maximum feasible" for that model year is amply supported by a well-developed record, and there is no basis for concluding that the MY 2021 standards no longer meet the statutory standard.

Second, revising the standards would create uncertainty and impose resulting costs on manufacturers and others in industry that are relying on the standards. One of the significant benefits of the 2012 rulemaking was the substantial lead time that it provided, to support long-term planning, research and development and investments in development and commercialization of technologies to meet the standards. To our knowledge, NHTSA has never revised an already-adopted CAFE standard. This would be damaging step for businesses in the near term and would create a negative precedent, undermining regulatory certainty and businesses' ability to make investments in reliance on future standards.

Third, and relatedly, any change to the MY 2021 standards would not provide adequate lead time as required by EPCA. NHTSA acknowledges that EPCA requires it to promulgate new CAFE standards for light-duty vehicles at least 18 months before the beginning of each model year, which NHTSA interprets to begin on September 1 of the prior calendar year. 83 Fed. Reg. at 43207 (citing 49 U.S.C. § 32902(a)). Accordingly, it recognizes the MY 2022 standards must be promulgated by April 1, 2020. *Id.* NHTSA concludes, however, that amendments to existing standards are governed by 49 U.S.C. § 32902(g)(2), which requires 18 months of lead time when NHTSA amends CAFE standards to make them more stringent. Because this provision does not specify a lead-time requirement for amendments to make standards less stringent, NHTSA concludes that EPCA imposes *no* lead time requirement in such circumstances. That is, NHTSA reads EPCA to allow amendments to reduce a standard's stringency *up to the beginning of the model year*. 83 Fed. Reg. at 43207.

This interpretation of the statute is unreasonable and impermissible, and NHTSA's proposed approach is otherwise arbitrary and capricious. Congress in § 32902 has indicated that at least 18 months of lead time are appropriate when setting standards. Manufacturers' need for adequate lead time when designing products and developing compliance strategies is the same regardless of whether the agency is making standards more stringent, less stringent, or simply changing the structure or compliance options provided under the standards. Manufacturers have

made substantial investments in designing their fleets to comply with the existing MY 2021 standard. Some manufacturers have positioned themselves to over-comply and thus earn credits with significant market value. By changing the existing standard at the last minute, NHTSA would devalue those investments and penalize companies positioned to comply or over-comply. *See Natural Res. Def. Council v. EPA*, 655 F.2d 318, 330 (D.C. Cir. 1981) ("Too late a relaxation would penalize technologically advanced firms . . . which would already have begun to manufacture vehicles that achieved better emission control . . . ."). The practical and financial impact of the change accordingly is not materially different from increasing the stringency of a standard this late in the product development cycle.

Even if NHTSA's argument that § 32902(a) does not apply to amendments to existing standards were reasonable, NHTSA should nevertheless read the statute's "maximum feasible" requirement to require at least 18 months of lead time when amending an existing standard—whether to make it more stringent or less so. In any event, it would be arbitrary and capricious to provide less than 18 months lead time in such circumstances.

D. NHTSA Should Adopt Standards Equivalent to the Advanced Technologies Compliance Flexibility Option

As set forth in Section II above, NHTSA should adopt CAFE standards consistent with the Advanced Technologies Compliance Flexibility Option proposed by NCAT. NCAT recognizes that EPCA precludes it from determining "maximum feasible" fuel economy based on "dedicated automobiles" (defined as vehicles that operate only on alternative fuel, including electricity and natural gas).[130] NCAT also understands that NHTSA interprets EPCA to preclude it and from adopting credit multipliers for EVs and other advanced technology vehicles that are distinct from the statutory provisions governing calculation of fuel economy from such vehicles.[131] Finally, NCAT recognizes that extension of the attribution of zero tailpipe GHG emissions to EVs is not relevant to the CAFE standards.

In the MY 2012-2016, MY 2017-2021, and augural MY 2022-2025 standards, however, NHTSA was able to harmonize CAFE standards with EPA GHG standards incorporating these flexibility mechanisms. NCAT recommends that NHTSA do so here, presumably by calibrating the stringency of the augural CAFE targets to require equivalent performance to that required by maintaining the existing top-line GHG targets coupled with the additional compliance flexibilities proposed above. NCAT urges NHTSA to determine that this approach constitutes the "maximum feasible" level of fuel economy for MY 2022-2025 vehicles.

VI. EPA'S PROPOSED STANDARDS ARE NOT APPROPRIATE UNDER CLEAN AIR ACT SECTION 202(A)

A. Clean Air Act Requirements

CAA Section 202(a)(1) directs EPA to promulgate standards for emissions of air pollutants from any class or classes of new motor vehicles or new motor vehicle engines which

[130] 49 U.S.C. § 32902(h)(3); 83 Fed. Reg. at 43212.

[131] *See*, *e.g.*, 77 Fed. Reg. at 62650-51.

cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. 42 U.S.C. § 7521(a)(1). Following the Supreme Court's decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), holding that greenhouse gases (GHGs) are within the CAA's definition of "air pollutant", *id.* at 528-29, EPA in 2009 issued an Endangerment Finding for GHGs.[132] This finding obligated EPA to set GHG emissions standards for motor vehicles,[133] which EPA promulgated for light-duty vehicles in rulemakings in 2010 for MY 2012-2016 and in 2012 for MY 2017-2025.[134]

EPA considers several factors when setting vehicle emission standards under CAA Section 202(a). EPA must set technology-based standards, premised on a finding of technological feasibility considering lead time. *Natural Res. Def. Council*, 655 F.2d at 322; 42 U.S.C. § 7521(a)(2) (standards must take effect after the period EPA "finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period."). Section 202(a) requires consideration of manufacturers' costs of compliance (but not social costs) and allows the agency to set technology-forcing standards. *See*, *e.g.*, *Motor & Equip. Mfrs. Ass'n Inc. v. EPA*, 627 F.2d 1095, 1118 (D.C. Cir. 1979).

B. EPA's Analysis and Proposal Are Inconsistent With the Clean Air Act

In the NPRM, EPA proposes to revise the existing MY 2021-2025 standards and establish new MY 2026 standards—freezing all such standards at MY 2020 levels. In support of this proposal, EPA emphasizes that Section 202(a) authorizes but does not *require* it to adopt "technology-forcing" standards. EPA recognizes that its preferred option will result in significant increases in GHG emissions and no incremental reductions in GHG emissions from light-duty vehicles beyond 2020, but does not acknowledge that it will also result in significant increases in non-GHG air pollutant emissions, with adverse health consequences. Citing its purported "statutory discretion and the broad range of factors that the statute authorizes and permits [EPA] to consider," EPA disregards the ready availability of emissions-reducing technologies and the environmental impacts of its proposal. 83 Fed. Reg. at 43231-32. It bases its proposal exclusively on the purported cost and safety impacts of the existing standards, which are premised on flawed analysis that the agency's own experts have rejected. *Id.* As set forth below, EPA's proposed standards are not supported by the record, do not comply with the requirements of Section 202(a), and are otherwise arbitrary and capricious.

1. EPA's Proposed Standards Are Not Supported By Modeling or Technical Analysis

First, as set forth in Section IV, the rulemaking record makes clear that EPA career staff and managers do not endorse—and in fact strongly object—to many fundamental aspects of the NHTSA-conducted modeling and technical analysis on which the proposed CAA Section 202(a)

[132] EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,499 (Dec. 15, 2009).

[133] *See* 42 U.S.C. § 7521(a)(1).

[134] EPA & NHTSA, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624 (Oct. 15, 2012).

standards are based.[135] These objections do not appear to have been addressed in the NPRM or PRIA. EPA cannot delegate its obligation and authority to set standards under the CAA to NHTSA. As argued above, while it may be permissible for EPA to adopt and rely on another agency's modeling or technical analysis in support of its rulemaking, EPA has a statutory obligation to independently review and adopt that analysis and the analysis itself must of course be defensible. Here, the rulemaking record makes apparent that the agency has not met those requirements. Further, as explained above, EPA's technical judgments with regard to the exercise of its statutory obligations will not be entitled to any deference on judicial review to the extent (1) it has not conducted independent technical analysis in support of its rulemaking and (2) the agency's expert staff do not endorse the modeling and analysis underpinning the CAA standards.

Finally, the NHTSA analysis accompanying EPA's proposal is so fundamentally flawed that it does not provide the public with adequate notice and opportunity to comment on the proposal. NCAT therefore urges EPA to conduct its own independent analysis in support of its proposed standards and to issue this analysis, and any accompanying adjustments to the proposal, through a supplemental notice of proposed rulemaking or notice of data availability.

2. Technology

Section 202(a) requires EPA to set technology-based standards. As with the CAFE standards (see Section V, above), EPA expressly acknowledges that "the majority" of the technologies needed to achieve the existing MY 2022-2025 standards "have already been developed, have been commercialized, and are in-use on vehicles today." 83 Fed. Reg. at 43229. Like NHTSA, EPA does not argue that technology *per se* is a constraint or basis for revising the existing standards—nor could it do so, given the extensive record before the agency, and its own past determinations, regarding the availability of technology to meet the standards.

3. Emissions Impacts

Section 202(a) provides in relevant part that EPA shall promulgate standards applicable to "any class or classes of new motor vehicles or new motor vehicle engines, which in [the Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). EPA has, of course, made an endangerment finding with regard to GHG emissions from new motor vehicles, and this finding has been upheld on judicial review.[136] This *requires* the agency "to regulate emissions of the deleterious pollutant from new motor vehicles." *Coalition for Responsible Regulation*, 684 F.3d at 126 (quoting *Massachusetts v. EPA*, 549 U.S. at 533). As discussed above, the science regarding climate change—and the urgency of the need for action to reduce GHG emissions—has only grown stronger in the time since EPA issued its endangerment finding. EPA nevertheless has proposed standards which result in no reductions in deleterious GHG emissions

[135] *See* Section III above and Exhibit A.

[136] 74 Fed. Reg. 66495 (Dec. 15, 2009); *Coalition for Responsible Regulation v. EPA*, 684 F.3d 102 (D.C. Cir. 2012), *aff'd in part and rev'd in part*, *Util. Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014).

from new motor vehicles for MY 2020-2026—and which result in substantial *increases* in GHG emissions relative to the existing standards they replace.

In the NPRM, EPA makes much of the fact that Section 202(a)(1) does not require it to set emission standards at levels reflecting the "greatest degree of emission reduction achievable," and it relies on its discretion to consider other factors. But although courts have held that EPA has some discretion in balancing relevant factors under Section 202(a), neither EPA nor any court has previously suggested that the agency may entirely subjugate emission reductions to other factors. The CAA's primary purpose is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401. Accordingly, while EPA can undertake reasoned balancing among relevant statutory factors, it cannot entirely ignore the CAA's primary objective in favor of other considerations. That is what EPA has proposed to do here: freeze standards at 2020 levels through 2026, resulting in *zero* reductions in GHG emissions beyond MY 2020—despite the availability of technologies that could provide such reductions.

In addition, EPA's Section 202(a) analysis entirely ignores the non-GHG pollutant implications of its proposal. While non-GHG air pollutant emissions are not the direct focus of regulation under the light-duty vehicle GHG standards, these impacts plainly are a relevant consideration in setting standards under Section 202(a). EPA's failure to consider them in setting the standards is inconsistent with Section 202(a) and arbitrary and capricious on its face.

Finally, it bears repeating here that the NPRM significantly underestimates both GHG and non-GHG air pollutant impacts of the proposal—because of the flawed projections of VMT and rebound impacts associated with the existing standards.

4. Cost, Consumer Acceptance and Safety

Ultimately, EPA's decision appears to be based entirely on the elevation of purported concerns with cost, consumer acceptance, and safety, to the virtual exclusion of technology availability and emission reductions consideration. EPA appears to be saying that any additional cost or potential safety impact is too much, such that no improvement in the standards over six years is appropriate or desirable. This is not a balancing of factors or considerations, but rather a decision to ignore some factors in favor of others. This is inconsistent with Section 202(a) and arbitrary and capricious.

Further, as discussed above (see Section IV), the purported safety and cost considerations on which EPA's analysis relies are based on deeply flawed modeling and analysis—modeling and analysis that EPA's own staff and managers have rejected as incorrect. Again, EPA has an independent statutory obligation to conduct analysis and endorse conclusions with regard to these issues. If the errors in the analysis accompanying the proposal were corrected as EPA staff and managers have suggested, it is apparent that safety or cost considerations would not provide any basis for the agency's proposal.

5. Lead Time

CAA Section 202(a) provides that standards "shall take effect after such period as [EPA] finds necessary to permit the development and application of the requisite technology, giving

appropriate consideration to the cost of compliance within such period." 42 U.S.C. § 7521(a)(2). This lead time requirement should be applied equally to setting new standards and to revising existing standards. EPA's proposed revisions to the MY 2021 standards, in particular, do not provide manufacturers with adequate lead time. As discussed above in Section V, manufacturers have already designed their products for this model year with the existing standards in place. This includes manufacturers, including members of NCAT, that have made investments and product plans to over-comply with the standards, allowing them to generate valuable credits under the existing program. *See Natural Res. Def. Council*, 655 F.2d at 330 ("Too late a relaxation would penalize technologically advanced firms . . . which would already have begun to manufacture vehicles that achieved better emission control . . . ."). The MY 2021 standards were never intended to be subject to the Mid-Term Evaluation process for the MY 2022-2025 standards. EPA's proposal to dramatically reduce the stringency of these standards, and to eliminate certain flexibility mechanisms included in the standards such as credits for air conditioning and reductions in nitrous oxide and methane emissions, at this stage in the process would violate Section 202(a)'s lead time requirement and is arbitrary and capricious.

C. EPA Should Maintain Existing Standards or Adopt the Advanced Technologies Compliance Flexibility Option

As set forth in Section II, EPA should maintain the existing GHG standards for MY 2022-2025 or adopt standards consistent with the Advanced Technologies Compliance Flexibility Option proposed by NCAT.

VII. EPCA DOES NOT PREEMPT STATE GHG AND ZEV STANDARDS

In the MY 2021-2026 NPRM, the agencies propose to determine that California's and other states' GHG and ZEV standards are preempted by EPCA—as a result both of express preemption under EPCA and implied conflict preemption. NCAT strongly disagrees with this proposal and urges the agencies to withdraw it. As set forth below, the legal interpretation the agencies advance is incorrect and at least two federal courts have rejected it. Further, state authority to set and implement GHG and ZEV standards plays a critical role in addressing both air quality and climate related concerns and does not conflict with federal regulatory authority.

A. The Critical Role of State Vehicle Standards

For California and the Section 177 States, state vehicle standards are central to addressing local and regional air pollution problems, which in many cases are severe. As of 2017, approximately 11 million Americans lived in counties with pollution levels above the primary NAAQS.[137] In many areas of the country, pollution from vehicles are the leading source of poor air quality. Electric and other zero emission vehicles are a critically important, cost-effective strategy to reduce such air pollution, particularly in areas with severe air quality problems. These vehicles—both light-duty and heavy duty—can reduce both conventional air pollution and carbon emissions by as much as 70 percent relative to gasoline-fueled vehicles.[138] On average

[137] U.S. EPA, "Air Quality - National Summary" (July 25, 2018), https://www.epa.gov/air-trends/air-quality-national-summary.

[138] *See*, *e.g.*, Southern California Edison, Transportation Electrification Proposals Testimony, *supra* note 69 at 9-10; Union of Concerned Scientists & The Greenlining Institute, "Delivering Opportunity: How Electric Buses and

across the United States, annual emissions per vehicle are substantially lower for all electric vehicles as compared to gasoline vehicles. The emissions reductions are even greater in geographic areas that use relatively low-polluting energy sources for electricity generation.[139]

State vehicle standards also play an essential role in driving the development and deployment of advanced technology vehicles. California and the other nine States that have adopted California's ZEV regulations account for nearly 30 percent of all new vehicle sales in the United States. These standards accordingly provide essential support for investment in development and deployment of EVs and other advanced technology vehicles, not just in the Section 177 States, but nationally as well. Any undermining of state authority, accordingly, could have a significant adverse impact on the prospects for transportation electrification and deployment of advanced vehicle technologies across the country—undermining business opportunities for utilities, manufacturers, and infrastructure companies.

State standards also play a key role in supporting major infrastructure and economic development plans in these States. NCAT's members and other businesses have made significant investments and are implementing long-term business strategies that depend upon continued implementation of the ZEV regulations, and on the continued vitality of the state authorities upon which the regulations are based. *See supra* Section III.

B. Overview of California's LEV III and ZEV Standards

California's Low-Emission Vehicle III (LEV III) regulations require that manufacturers reduce criteria pollutants and greenhouse (GHG) emissions from light and medium-duty vehicles.[140] California's ZEV standards require manufacturers to submit credits reflecting the production and delivery for sale in California of prescribed volumes of ZEVs, as adjusted through certain crediting formulas established by the regulation—including credits for transitional ZEVs (TZEVs) and (until MY 2018) Partial ZEVs (PZEVs). Importantly, ZEVs are defined as "vehicles that produce zero exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas, excluding emissions from air conditioning systems, under any possible operational modes or conditions." 13 CCR § 1962.1(b)(1)(A). PZEVs are defined with regard to other emission standards, including super-ultra-low-emission-vehicle (SULEV) standards and evaporative emission standards for non-GHG pollutants. 13 CCR § 1962.1(c); 2013 Waiver Grant, 78 Fed. Reg. at 2114. TZEVs in turn are defined as PZEVs that use a "ZEV fuel," such as electricity, hydrogen or compressed air. 13 CCR § 1962.1(i)(15), (18); 2013 Waiver Grant, 78 Fed. Reg. 2112, 2114 (Jan. 9, 2013). In addition, TZEVs must either have an all-electric range of 10 miles or greater or have a hydrogen internal combustion engine that meets certain requirements. *See* 13 CCR § 1962.2(i)(16) (cross-referencing § 1962.2(c)(3)(A) and (E)). The upshot of these ZEV requirements is that only EVs, PHEVs, FCVs, or certain hydrogen fueled vehicles qualify as ZEVs or TZEVs.

Trucks Can Create Jobs and Improve Public Health in California" (2016) at 2-3, *available at* http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf.

[139] U.S. DOE Alternative Fuels Data Center, "Emissions from Hybrid and Plug-In Electric Vehicles" https://www.afdc.energy.gov/vehicles/electric_emissions.php (last updated May 28, 2017) (see comparison of electricity sources and annual vehicle emissions, on a national average and state-by-state basis).

[140] *See* 13 CCR §§ 1961.2, 1961.3.

C. California's LEV III and ZEV Standards Are Not Expressly Preempted Under EPCA

EPCA's preemption provision provides in relevant part: "When an average fuel economy standard prescribed under this chapter [49 USCS §§ 32901 et seq.] is in effect, a State or a political subdivision of 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). Express preemption analysis begins with two key principles. First, "[i]n all pre-emption cases, and particularly in those in which Congress has 'legislated . . . in a field which the States have traditionally occupied,' we 'start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress." *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996) (internal citations omitted). Second, the Supreme Court has consistently emphasized that "'[t]he purpose of Congress is the ultimate touchstone' in every pre-emption case," and that courts are to examine that purpose based on the "structure and purpose of the statute as a whole" and "the way in which Congress intended the statute and its surrounding regulatory scheme to affect business, consumers, and the law." *Id.* (internal citations omitted).

As NHTSA acknowledges, two district courts have already considered and rejected the EPCA preemption arguments the agency advances in the NPRM. *See Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007); *Green Mtn. Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295 (D. Vt. 2007). NHTSA's arguments against those decisions are misplaced.

In its landmark decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court made clear that EPCA regulation of fuel economy and CAA regulation of GHG emissions can and must be reconciled. "EPA has been charged [under the CAA] with protecting the public's 'health' and 'welfare,' a statutory obligation wholly independent of [the Department of Transportation's] mandate to promote energy efficiency [under EPCA]. The two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency." *Id.* at 532. In other words, "Congress intended EPA to be able to promulgate emissions control regulations for the protection of public health and welfare *notwithstanding the potential effect of those regulations on average fleet fuel economy standards* determined under EPCA." *Central Valley*, 529 F. Supp. 2d at 1167 (emphasis added). Following the Supreme Court's decision, EPA and NHTSA have worked closely, in collaboration with California, to issue multiple joint EPA-NHTSA rules addressing fuel economy and GHG emissions. As part of a harmonized National Program, California adopted the Advanced Clean Cars program, including MY 2017-2025 GHG and ZEV standards, for which EPA has granted a waiver under CAA Section 209(b). Given the Supreme Court's clear guidance that EPCA and CAA authorities must be reconciled notwithstanding overlap, EPCA should not be read to preempt state emission standards that are contemplated and authorized by the CAA.

Regulation of health and safety is plainly a field of traditional state authority, and state regulation of air pollution generally—and vehicle emissions in particular—long preceded federal regulation. Indeed, California had regulated vehicle emissions since before 1966—well in

advance of EPCA's enactment in 1975—and Congress acted both in 1967 and in 1977 to preserve California's authority through Section 209 of the Clean Air Act. *Central Valley*, 529 F. Supp. 2d at 1174-75. Congress in EPCA did not clearly state an intention to preempt state emission standards intended to protect public welfare, even where such standards may affect fuel economy.

On the contrary, other provisions of EPCA make clear that Congress did not intend the statute to preempt state vehicle emission standards. EPCA expressly provides that in setting federal CAFE standards NHTSA must consider "the effect of other motor vehicle standards of the Government on fuel economy." 49 U.S.C. § 32902(f). This provision has long been read to require NHTSA to consider, not only federal emission standards under the CAA but also state emission standards for which preemption has been waived under Section 209. *Green Mountain*, 508 F. Supp. 2d at 346-47 & n.54; *Central Valley*, 529 F. Supp. 2d at 1173. NCAT disagrees with the agencies assertions to the contrary in the NPRM. The existence of this provision highlights that the fact that state emission standards may affect fuel economy does not render them "related to" fuel economy and therefore preempted. But more importantly, because EPCA expressly requires that NHTSA consider "other motor vehicle standards of the government" in the development of fuel economy standards – including state emission standards for which CAA preemption has been waived – EPCA's preemption provision cannot reasonably be read to block such standards. *Central Valley*, 529 F. Supp. 2d at 1168.

Equivalent treatment under EPCA of federal vehicle standards under the CAA and state standards for which a Section 209 waiver has been granted makes sense given that such standards are equivalent, both in nature and effect. Notably, CAA Section 209(b)(3) provides that "[i]n the case of any new motor vehicle or new motor vehicle engine to which State standards apply pursuant to a waiver granted under [Section 209(b)(1)], compliance with such State standards shall be treated as compliance with applicable Federal standards for purposes of this subchapter." In other words, once EPA waives preemption of California (and by extension Section 177 state standards) under the CAA, such standards effectively substitute for applicable federal standards. Again, given *Massachusetts v. EPA*'s guidance that EPCA and the CAA must be reconciled, EPCA cannot reasonably be read to preclude state GHG emission standards that are in all relevant respects equivalent to federal standards.

In the NPRM, the agencies argue that: "GHG emissions, and particularly CO2 emissions, are mathematically linked to fuel economy; therefore, regulations limiting tailpipe CO2 emissions are directly related to fuel economy." 83 Fed. Reg. at 43234. In the agencies' view, any "state requirement limiting tailpipe CO2 emissions is [a law or regulation relating to fuel economy standards] because it has the direct effect of regulating fuel consumption." *Id.* The agencies also take the position that a standard regulating "*all* tailpipe emissions, carbon or otherwise" relates to fuel economy "since the majority of tailpipe emissions consist of CO2. We recognize that this preempts state programs, such as California's ZEV mandate, that establish requirements that a portion of a vehicle's [sic] fleet sold or purchased consist of vehicles that produce no tailpipe emissions." *Id.*; *see also id.* at 43238 (further expounding the argument that ZEV mandates are expressly preempted). They further conclude that standards that combine regulation of smog-forming emissions with regulation of CO2 emissions (as do California's and other states' LEV III regulations) is preempted to the extent it regulates CO2 emissions. *Id.* at

43235 n. 508. NCAT strongly disagrees with this analysis with regard to both the LEV III and ZEV standards.

California's LEV III standards are not "related to fuel economy standards or average fuel economy standards," 49 U.S.C. § 32919(a), and are therefore not expressly preempted by EPCA. The LEV III GHG standards were enacted for the purpose of protecting public health and welfare and affect fuel economy only incidentally to that purpose. *See Central Valley*, 529 F. Supp. 2d at 1174-75. Further, the standards can be met in whole or in part through measures and technologies other than increased fuel efficiency, and the standards address GHG emissions other than carbon dioxide produced as a result of fuel combustion. Notably, they can be fully met through the use of alternative drive technologies that use different fuels altogether (*e.g.*, electricity or hydrogen)—rather than merely improving the fuel efficiency of conventional internal combustion engines. Additionally, under LEV III, manufacturers can generate air conditioning system credits through system efficiency improvements, low refrigerant leakage designs, and use of low global warming potential refrigerants. 2013 Waiver Grant, 78 Fed. Reg. at 2135-36. As the *Green Mountain* court explained, the California and Vermont GHG regulations at issue in that case were not "related to" fuel economy standards in part because they included an array of compliance options allowing multiple approaches with varying levels of fuel economy. 508 F. Supp. 2d at 351-53. Likewise, the *Central Valley* court held "that a law that requires substantial improvement in average fleet mileage standards incidentally to its purpose of protecting public health and welfare does not constitute a de facto regulation of fuel economy standards *unless there is a narrow one-to-one correlation between the pollution reduction regulation and the fuel efficiency standard*." *Central Valley*, 529 F. Supp. 2d at 1175 (emphasis added). That is not the case with regard to the LEV III GHG standards.

It is even clearer that California's ZEV standards are not "related to fuel economy standards or average fuel economy standards," 49 U.S.C. § 32919(a), and are therefore not expressly preempted by EPCA. The ZEV standards require the production and sale of vehicles meeting stringent, integrated conventional pollutant and GHG limits that *cannot be achieved through application of increased fuel efficiency*. Rather, they unequivocally require implementation of alternative drive technologies and fuels, including electric drive, hydrogen or compressed air. While qualification as a ZEV is defined in part by reference to GHG emissions, the requirement of zero GHG or other air pollutant emissions has the effect of making internal combustion engines ineligible. No degree of "fuel economy" can be applied to achieve these standards. And the energy efficiency of ZEVs (with regard to the alternative fuels and drive technologies they use) is largely irrelevant to meeting the requirements of the ZEV standards. Further, although ZEV standards achieve major reductions in GHG emissions, by virtue of the drive technologies the standards require, they achieve deep reductions in non-GHG pollutant emissions (*e.g.*, NOx emissions) that cannot be achieved by internal combustion engines. California has adopted ZEV standards in significant part precisely because of the NOx and other non-GHG emission reductions they achieve, which are critical to the achievement of air quality standards in the state. *See also infra* Section VIII.B.5.

D. California's LEV III and ZEV Standards Are Not Impliedly Preempted Under EPCA

The courts have found conflict preemption "where 'compliance with both federal and state regulations is a physical impossibility,' *Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132 (1963), and those instances where the challenged state law 'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress,' *Hines*, 312 U.S., at 67; *see also Crosby* at 373 ('What is a sufficient obstacle is a matter of judgment, to be informed by examining the federal statute as a whole and identifying its purpose and intended effects')." *Arizona v. United States*, 567 U.S. 387, 399 (2012).

In the NPRM, the agencies also argue that state standards limiting or prohibiting tailpipe CO2 emissions "clearly conflict with the objectives of EPCA and would therefore also be impliedly preempted." 83 Fed. Reg. at 43237. They extend this argument to ZEV mandates. *Id.* at 43238-39. Specifically, they argue that ZEV mandates "force investment in specific technology (electric and fuel cell technology)," which they say "appears to conflict directly with Congress's intent that CAFE standards be performance based rather than design mandates." *Id.* at 43239. They go on to argue that "the ZEV mandate forces further expensive investments in fuel-saving technology than NHTSA has deemed appropriate to require in setting fuel economy standards." *Id.*

This analysis is not consistent with basic standards of conflict preemption. The Supreme Court has made clear that "[i]mplied preemption analysis does not justify a 'free-wheeling judicial inquiry into whether a state statute is in tension with federal objectives'; such an endeavor 'would undercut the principle that it is Congress rather than the courts that preempts state law.' Our precedents 'establish that a high threshold must be met if a state law is to be pre-empted for conflicting with the purposes of a federal Act.'" *Chamber of Commerce of the United States of Am. v. Whiting*, 563 U.S. 582, 607 (2011) (internal citations omitted). Neither the LEV III nor the ZEV standards meet this "high threshold."

California's standards apply to vehicles sold within the state and do not render compliance with NHTSA's standards impossible. Further, they support, rather than frustrate, EPCA's primary purpose of promoting energy conservation through the application of maximum feasible fuel economy. Even if the implementation of the LEV III and ZEV standards leads to technology forcing, "that technology forcing does not constitute an interference with EPCA's purpose of setting average fleet mileage standards to the maximum feasible level." *See Central Valley*, 529 F. Supp. 2d at 1179.

VIII. EPA LACKS AUTHORITY TO RESCIND THE 2013 WAIVER

A. EPA Lacks Statutory Authority to Rescind the Waiver

EPA lacks authority under the CAA to rescind a waiver granted under Section 209(b). It is telling that EPA has never—in the course of 50 years since Section 209 was first enacted—attempted to rescind a Section 209(b) waiver or suggested it has authority to do so. While Section 209(b) clearly and expressly sets forth the process and criteria for EPA to *grant or deny* a waiver to California ("after notice and opportunity for public hearing"), it includes no language authorizing the agency to rescind a previously granted waiver. Indeed, nothing in the text or structure of the statute remotely suggests that Congress intended EPA to have such authority. To read such authority into the statute would violate the well-established principle that when

Congress intends to preempt the historic powers of the States, "it must make its intention to do so 'unmistakably clear in the language of the statute.'" *Raygor v. Regents of the Univ. of Minn.*, 534 U.S. 533, 544–45 (2002). This same principle applies here, where Congress has expressly limited the scope of preemption under Section 209 by requiring EPA to waive preemption unless the agency makes one or more specific affirmative determinations. Accordingly, absent a clear Congressional statement, EPA lacks authority to rescind a waiver.

Other provisions of the CAA make clear that Congress knows how to authorize EPA to rescind a waiver if it chooses to do so. For example, CAA Section 505(d), authorizes EPA to waive certain notification requirements for Title V permit applicants, but expressly states that "*[a]ny waiver granted under this subsection may be revoked or modified by the Administrator by rule*." 42 U.S.C. § 7661d(d) (emphasis added). Several other CAA provisions likewise specify the conditions for termination or extension of a waiver. *See, e.g.,* 42 U.S.C. § 7411(j)(D)-(F) (expressly establishing time frame and basis for termination of a waiver for innovative systems of emission reduction); 42 U.S.C. § 7412(f)(4) (establishing express time limit for waiver of standards); 42 U.S.C. § 7545(o)(7)(C) (expressly providing for termination and limited extension of a waiver of certain renewable fuel standard requirements). Where, as here, "'Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.'" *Brown v. Gardner*, 513 U.S. 115, 118 (1994) (quoting *Russello v. United States*, 464 U.S. 16, 23 (1983)). Accordingly, Congress's decision not to include similar language in Section 209(b) makes clear that it did not intend to authorize EPA to rescind a waiver once granted.

Congress's decision not to authorize EPA to revoke a previously granted waiver makes good sense as a policy matter. Indeed, it is difficult to imagine Congress adopting the contrary position, and certainly not without imposing significant restrictions on such authority. Both California and the other Section 177 states, and the entities they regulate, justifiably rely on EPA waiver decisions in order to implement state programs for which a waiver has been granted. States and regulated entities make substantial investments based on this reliance – with regard to compliance with requirements, administration of programs, and achievement of policy objectives and statutory requirements such as attainment and maintenance of the NAAQS. Granting EPA authority to revoke a waiver of preemption after the fact would create substantial uncertainty for all of these parties; and exercise of any such authority would wreak havoc, severely disrupting investments and imposing significant costs. It is not surprising that Congress opted not to create such a regime.

B. EPA's Proposed Grounds for Rescission Are Invalid

1. EPA Must Meet a High Bar to Deny, Let Alone Rescind, a Waiver

Even if EPA were authorized to rescind a previously granted waiver (which it is not), the proposed rescission is inconsistent with the statute, unsupported by the record, and otherwise arbitrary and capricious.

The legislative history of Section 209 makes clear that Congress intended "to afford California the broadest possible discretion in selecting the best means to protect the health of its

citizens and the public welfare" and that EPA "is not to overturn California's judgment lightly."[141] In an early foundational case, the U.S. Court of Appeals for the D.C. Circuit found that "[t]he history of congressional consideration of the California waiver provision . . . indicates that Congress intended the State to continue and expand its pioneering efforts at adopting and enforcing motor vehicle emission standards different from and in large measure more advanced than the corresponding federal program; in short, to act as a kind of laboratory for innovation." *Motor & Equip. Mfrs. Ass'n. v. EPA*, 627 F.2d 1095, 1110-11 (D.C. Cir. 1979), *cert. denied*, 446 U.S. 952 (1980) ("*MEMA I*"); *see also Ford Motor Co. v. EPA*, 606 F.2d 1293, 1297 (D.C. Cir. 1979) ("In short, Congress consciously chose to permit California to blaze its own trail with a minimum of federal oversight."). EPA has granted over 50 waivers of preemption under Section 209, including waivers of preemption for earlier generations of California's LEV and ZEV standards, going back to the 1990s.[142] EPA has partially denied waivers in a handful of instances, but has only fully denied a waiver once in the 50 years since Section 209 was enacted—and that denial was fully reversed.

EPA's consistent practice, and governing D.C. Circuit precedent, make clear that the agency's review of a waiver request must be deferential and limited in scope. Section 209(b) *requires* EPA to waive federal preemption of California vehicle emission control regulations *unless* EPA makes certain findings that a waiver is inappropriate. *MEMA I,* 627 F.2d at 1100. This structure demonstrates Congress' intent to afford deference to California. 2013 Waiver Grant, 78 Fed. Reg. at 2115; *MEMA I*, 627 F.2d at 1121-22. Further, Section 209(b) limits the agency's authority to deny California's requests for waivers to the three criteria, and EPA therefore has refrained from denying California's requests for waivers based on any other basis. 2013 Waiver Grant, 78 Fed. Reg. at 2145 (rejecting argument that the agency should evaluate whether California's GHG standards are preempted under the Energy Policy and Conservation Act); *see also* 2009 Waiver Grant, 74 Fed. Reg. 32744, 32783 (July 8, 2009) (same). The D.C. Circuit has upheld EPA's position that it may not evaluate California's waiver request based on any other factors outside of those Congress directed it to consider. *See MEMA II*, 142 F.3d at 462–64; *MEMA I*, 627 F.2d at 1116-17.

Both the D.C. Circuit and EPA have made clear that Section 209(b) places the burden on the waiver opponents to demonstrate that one of the criteria in Section 209(b)(1) for a denial has been met. *See, e.g.*, *MEMA I*, 627 F.2d at 1121-22 ("The language of the statute and its legislative history indicate that California's regulations, and California's determination that they comply with the statute, when presented to the Administrator are presumed to satisfy the waiver requirements and that the burden of proving otherwise is on whoever attacks them."); EPA, 2013 Waiver Grant, 78 Fed. Reg. at 2116. This applies *a fortiori* where EPA proposes to rescind a previously granted waiver. *If* EPA had authority to do so (which it does not), it would have to demonstrate why its prior determination was incorrect as a matter of facts and/or law. This bar is

[141] *Motor & Equip. Mfrs. Ass'n. v. EPA*, 627 F.2d 1095, 1110, 1122 (D.C. Cir. 1979) (quoting H.R. Rep. No. 95–294 (1977), at 301-02).

[142] EPA, *California State Motor Vehicle Pollution Control Standards; Within the Scope Determination and Waiver of Preemption Decision for Amendments to California's Zero-Emission Vehicle (ZEV) Standards*, 76 Fed. Reg. 61,095, 61,096 (Oct. 3, 2011) (providing chronology).

yet higher given that the state and other stakeholders have justifiably relied on the waiver and rescission would impose significant hardship on these parties.

2. EPA's Proposed Waiver Rescission is Not Based on Any Independent or Valid Analysis

First, as with EPA's proposed standards under Section 202(a), EPA's proposed waiver rescission is predicated, in significant part, on the NHTSA modeling and analysis for the proposed standards. As discussed in Sections IV and VI, the rulemaking record makes clear that EPA did not conduct independent modeling and analysis in support of the proposal and that EPA staff and managers strongly disagreed with and specifically disavowed the NHTSA analysis. To the extent EPA's proposed waiver rescission relies on this analysis, it is inconsistent with the requirements of the CAA and otherwise arbitrary and capricious. Further, EPA's proposed waiver rescission consistently refers to the proposal's conclusions with regard to the technological feasibility, costs, and other implications of California's standards. But the rulemaking record does not include *any* analysis—by EPA *or* NHTSA—of the California or other Section 177 state standards. NHTSA's (flawed) analysis of the national standards is not equivalent to an analysis of California and the other Section 177 states' GHG standards, and it certainly is not an analysis of the ZEV standards. Analytical questions regarding costs, consumer acceptance, and other relevant factors would be materially different as applied to California and/or the other Section 177 states than on a national basis. For this reason alone, EPA's proposed waiver rescission is unsupported by the record and arbitrary and capricious.

3. EPCA Preemption is Not Relevant to Section 209(b)

EPA proposes to reverse its prior interpretations of Section 209(b) to, for the first time, read the provision to permit denial or rescission of a waiver to California where NHTSA takes the position that the relevant standards are preempted by EPCA. As explained above, California's standards are *not* preempted by NHTSA. But in any event, as EPA has stated in several prior waiver decisions, there is no reference in Section 209(b) to EPCA preemption nor anything that could be construed to address this issue. Section 209(b) is unambiguous in this regard, and EPA has no grounds to read this into the statute. Accordingly, EPCA preemption considerations are not a proper basis for a waiver decision under Section 209(b).

4. Withdrawal of the Waiver for the GHG Standards is Improper

a. *California Needs Standards to Address Compelling and Extraordinary Conditions*

Section 209(b) provides that EPA shall waive preemption of state standards if the state determines that "the State standards will be, *in the aggregate* at least as protective of public health and welfare as applicable Federal standards." 42 U.S.C. § 7543(b) (emphasis added). Section 209(b)(1)(B) provides, however, that no such waiver request shall be granted if EPA determines that the state "does not need *such State standards* to meet compelling and extraordinary conditions." 42 U.S.C. § 7543(b)(1)(B) (emphasis added). For decades, EPA has read this provision to focus, not on whether California needs any particular standard to meet compelling and extraordinary conditions, but rather whether the state needs its separate *program*

of vehicle standards to meet such conditions. EPA now proposes to reverse that interpretation—arguing that it should examine the need for GHG and LEV standards independently of the rest of California's program. Further, EPA proposes to find that California does not need the GHG and LEV standards because (1) California does not face climate change impacts that are materially different from those affecting the rest of the United States, and (2) California's standards will not meaningfully reduce climate impacts on the state.

NCAT disagrees with each element of this proposed reading of the statute. With regard to the *scope* of EPA's analysis, the plain text of Section 209(b) confirms EPA's longstanding reading of Section 209(b)(1)(B) to apply to California's need for its vehicle standards program "in the aggregate." California plainly has met this test. Even if EPA's new reading of the provision were permissible, however, it has not demonstrated that California does not need GHG standards to address compelling and extraordinary conditions. The impacts of climate change are unquestionably compelling and extraordinary. California need not show that those impacts affect it uniquely relative to the rest of the United States. But even if it did, California faces unique challenges associated with climate changes, as a result of the intersection of its population size and distribution with ozone air quality challenges (which are exacerbated by climate change), risk of wildfires, and severe water scarcity challenges, among other impacts.

Finally, NCAT disagrees with EPA's argument that California does not "need" vehicle standards that reduce GHG emissions because such standards alone cannot meaningfully reduce the impacts of climate change on California. EPA's proposed approach would read into the statute requirements that Congress did not choose to impose: that a single standard be sufficient to resolve an environmental problem caused by multiple and diverse sources. Rather, need should be defined by reference to the underlying problem, and California's standards are one important element of the broader response.

b. *The Standards Are Consistent with Section 202(a)*

Section 209(b)(1)(C) provides that EPA can deny a waiver if "such State standards and accompanying enforcement procedures are not consistent with" CAA Section 202(a). 42 U.S.C. § 7543(b)(1)(C). Like Section 209(b)(1)(B), the appropriate scope of application of this provision is to California's program as a whole, not the individual standard. *MEMA II*, 142 F.3d at 463–64 ("[S]ection 209(b)(1) makes clear that section 202(a) does not require, through its cross-referencing, consistency with each federal requirement in the act. California's consistency is to be evaluated 'in the aggregate,' rather than on a one-to-one basis."). Further, EPA has consistently stated and the D.C. Circuit has held that the scope of the agency's review under this criterion is limited to whether waiver opponents have met their burden of establishing: (1) that California's standards are technologically infeasible, or (2) that California's test procedures impose requirements inconsistent with federal test procedure. 2013 Waiver Grant, 78 Fed. Reg. at 2132; *MEMA II*, 142 F.3d at 463-64.

Here, EPA has not demonstrated that California's GHG standards are technically infeasible or that its test procedures impose inconsistent requirements. It purports to find that California's standards provide inadequate lead time, but this argument is entirely unsupported. EPA's purported reliance on the NHTSA analysis underpinning the NPRM for this proposition amounts to little more than vague hand waving. EPA's arguments in this regard fail on at least

four separate grounds: (1) EPA's own staff has disavowed the analysis; (2) the analysis is deeply flawed; (3) the NPRM elsewhere expressly concedes that the existing federal standards are technologically feasible; and (4) neither EPA nor NHTSA has conducted any analysis at all of the feasibility of *California's* standards, which is a distinct question from the federal standards.

5. Withdrawal of the Waiver for the ZEV Standards is Improper

a. *California Needs Standards to Address Compelling and Extraordinary Conditions*

EPA also argues that California does not need the ZEV standards to address compelling and extraordinary conditions because the ZEV standards can be satisfied in part through sales of ZEVs in the other Section 177 states. 83 Fed. Reg. at 43250. First, the ZEV credit "travel" provision on which this argument appears to be premised expires in MY 2018, so this issue is moot. More fundamentally, the fact that California provided manufacturers with a limited flexibility mechanism allowing some credit for out-of-state sales in no way supports a finding that California does not need ZEV standards to meet compelling and extraordinary conditions. With regard to the GHG emissions benefits of ZEVs, these are equally achieved through out-of-state sales because of the nature of GHGs as a well-mixed global pollutant. With regard to non-GHG pollutants, the vast majority of ZEV sales to comply with the standard have occurred in California and the vast majority of the emissions reduction benefits of the standard have accrued and will accrue in California. EPA has not shown otherwise and cannot do so.

The arguments set forth above with regard to the LEV III GHG standards apply equally to the ZEV standards. In addition, California's ZEV standards are intended to and do achieve significant incremental reductions of NOx and other non-GHG emissions. It is beyond dispute that California faces compelling and extraordinary challenges with regard to criteria air pollution—including the only "extreme" nonattainment areas in the country. Further, vehicle emissions in California are a leading source of poor air quality, and vehicles meeting California's ZEV standards can reduce criteria pollutant emissions substantially relative to gasoline-fueled vehicles.

For this reason, several of California's air quality management districts have identified deployment of ZEVs as a critical element of their overall attainment strategies. For example, the South Coast Air Quality Management District has concluded that a 45% reduction in NOx emissions will be required by 2023, and a 55% reduction by 2031, to attain the ozone NAAQS.[143] Mobile sources account for over 80 percent of regional NOx emissions, and accordingly the District has recognized the deployment of ZEVs is a key element of its attainment strategy.[144] Similarly, the San Joaquin Valley Air Pollution Control District recently concluded:

> Despite achieving significant emissions reductions through decades of implementing the most stringent stationary and mobile regulatory control program in the nation, NOx emissions reductions in the Valley must be reduced by an additional 90% in order to

[143] *See* South Coast Air Quality Management District, Final 2016 Air Quality Management Plan at 4-2 (Mar. 2017), at http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp.

[144] *Id.* at 4-7, 4-8, 4-22 to 4-25.

> attain the latest federal ozone and PM2.5 standards that now encroach on natural background levels. This air quality challenge is unmatched by any other region in the nation.
>
> With over 85% of the Valley's remaining ozone and PM2.5 precursor emissions now coming from mobile sources under state and federal jurisdiction, the Valley cannot reach attainment even if all stationary sources were to be shut down. While the District continues to leave no stone unturned in reviewing all existing stationary source categories and regulations for additional emissions reductions opportunities, attaining the federal standards is not possible without significant reductions in emissions from mobile source categories (see Figures ES-4 and ES-5).
>
> Given the enormity of the reductions needed for attainment, mobile sources, particularly in the goods movement sector, must transition to near-zero emission levels through the implementation of transformative measures. The District does not have the authority to implement regulations requiring ultra-low tailpipe emissions standards on mobile sources. New state and federal regulations coupled with a robust incentive-based emission reduction strategy are necessary to have any chance to achieve the enormous reductions that are necessary to attain the federal standards.[145]

In conclusion, even if Section 209(b) authorized EPA to deny or rescind a waiver based on separate consideration of an individual standard, EPA has not demonstrated and cannot demonstrate that California does not need the ZEV standards to address compelling and extraordinary conditions related to vehicular emissions of criteria air pollutants.

b. *EPA Has Not Demonstrated that the ZEV Standards Are Inconsistent with Section 202(a)*

Again, the arguments set forth above with regard to the GHG standards apply equally to the ZEV standards. Further, it bears emphasis that, even if NHTSA's flawed analysis of the federal standards could somehow be construed to demonstrate that California's *GHG* standards are somehow inconsistent with Section 202(a) (which it cannot), the rulemaking record includes no analysis whatsoever of the feasibility, costs, or other characteristics of California's *ZEV* standards. The ZEV standards impose entirely distinct requirements from federal or state GHG standards. CARB conducted its own Mid-Term Review of its ZEV standards, based on extensive technical analysis, and concluded that the standards are achievable at reasonable cost.[146] The rulemaking record before EPA does nothing to refute CARB's analysis or to support its contrary conclusion.

6. The Section 177 States Have Authority to Adopt California's GHG and ZEV Standards

EPA proposes to interpret CAA Section 177 to allow other states to adopt California's vehicle standards only if such standards "are designed to control criteria pollutants to address

[145] San Joaquin Valley Air Pollution Control District, 2016 Ozone Plan for 2008 8-Hour Ozone Standard at ES-5 (June 16, 2016), at http://valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm.

[146] CARB, MTR Technical Report, *supra* note 69.

NAAQS nonattainment." 83 Fed. Reg. at 43253. While Section 177 requires the relevant state to have approved nonattainment SIP provisions, it unequivocally allows such states to "adopt and enforce for any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines . . . if (1) [s]uch standards are identical to the California standards for which a waiver has been granted for such model year, and (2) California and such State adopt such standards at least two years before the commencement of such model year." 42 U.S.C. § 7507. The availability of this provision is unambiguous and nothing in it supports the limitation EPA proposes to read into it. EPA's proposed reading of the statute is plainly incorrect and should be discarded.

But even if EPA's proposed interpretation of Section 177 were permissible (which it is not), the ZEV and GHG standards would qualify under this interpretation. As explained above, the ZEV standards are intended to and do achieve significant reductions in NOx and other criteria pollutant emissions and, as such, are designed to control criteria pollutants to address nonattainment. The LEV III GHG standards are designed to harmonize with the LEV III non-GHG standards that directly target criteria pollutants, and they are also intended to mitigate climate change, which exacerbates ozone nonattainment problems.

IX. THE DEIS DOES NOT SATISFY THE REQUIREMENTS OF NEPA

A. NEPA Requirements

Under NEPA, NHTSA is required to consider the environmental impacts of its proposed CAFE standards as well as the impacts of alternative actions. *See* 42 U.S.C. § 4332(2)(C). The agency's NEPA analysis must be detailed, *id.*, and provide a comprehensive "hard look" at the potential environmental impacts, *see, e.g.*, *League of Wilderness Defenders-Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1075 (9th Cir. 2012) ("Taking a 'hard look' includes 'considering all foreseeable direct and indirect impacts. Furthermore, a 'hard look' should involve a discussion of adverse impacts that does not improperly minimize negative side effects.'" *Id.* (citation omitted)).

When determining the "purpose and need" of the action for NEPA analysis, NHTSA must frame the need, and corresponding alternatives, by reference to EPCA's statutory purpose and requirements. The agency "must look hard at the factors relevant to the definition of purpose" and should consider the views of Congress in the agency's statutory authorization, as well as in other congressional directives. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991). The agency must define its objectives broadly enough to avoid unreasonably narrowing the scope of the action and alternatives for consideration. *See, e.g.*, *League of Wilderness Defenders-Blue Mountains Biodiversity Project*, 689 F.3d at 1069; *Nat'l Parks & Conservation Ass'n v. BLM*, 606 F.3d 1058, 1072 (9th Cir. 2010) (holding that "[a]s a result of this unreasonably narrow purpose and need statement, the BLM necessarily considered an unreasonably narrow range of alternatives") (internal citations omitted).

As described in the NEPA regulations, the section analyzing alternatives relative to the proposed action is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NHTSA must "[r]igorously explore and objectively evaluate all reasonable alternatives." *See id.* § 1502.14(a). The NEPA regulations provide that the alternatives analysis shall "include the

alternative of no action," 40 C.F.R. § 1502.4(d), which provides a baseline for the agency to analyze impacts of the proposed action.

B. The Range of Alternatives Analyzed in the DEIS is Insufficient

In the DEIS, NHTSA evaluated alternatives that only range in stringency from the existing MY 2021 and MY 2022-2025 augural standards (most stringent alternative) to freezing the standards at MY 2020 levels into the future (least stringent alternative). DEIS at S-2–S-4. As a result of the factual record before the agency, in defining "reasonable alternatives" for analysis NHTSA instead should identify and analyze technology-forcing alternatives that exceed the stringency of the existing/augural standards. As explained in NCAT's EIS Scoping Comments, in the 2012 rulemaking, NHTSA analyzed options including a 7 percent annual increase in fuel economy—though it ultimately settled on augural standards reflecting (on average) an average annual increase of 4.7 to 4.9 percent for MY 2022-2025.[147] As explained above, advanced vehicle and other fuel efficiency technologies have improved and costs have declined considerably since the augural standards were announced in 2012. In the six years since the announcement of the augural standards, there has been a dramatic shift in investment, consumer support, and infrastructure development in favor of EVs and other advanced technology vehicles. Given that NHTSA identified a 7 percent annual increase in stringency as a reasonable upper bound for analysis of "maximum feasible" standards in 2012, changes since that time support analysis of alternatives at least this stringent in the pending rulemaking. At the very least, NHTSA should have evaluated an alternative that is more stringent than the existing/augural standards. In addition, NHTSA must also consider an alternative that keeps the California waiver in effect. While EPA has proposed to rescind the waiver, it remains currently in effect and should have been considered among the alternatives evaluated in the DEIS. These deficiencies in the DEIS's alternatives analysis render NHTSA's NEPA analysis inadequate.

C. The DEIS Is Premised on Flawed Modeling and Analysis and Fails to Address Important Impacts

NHTSA must take a "hard look" at adverse impacts of any decision to weaken standards, as well as beneficial impacts of any decision to strengthen standards. The fundamental and pervasive flaws in the modeling and analysis underpinning the standards (discussed in Sections III and IV) carry over to the DEIS and substantially affect NHTSA's review of the projected impacts of its proposal. As noted above, these flaws affect estimates of fatalities and non-fatal injuries, fuel consumption, GHG and non-GHG air pollutant emissions, and traffic congestion and noise, among other impacts. If these defects are not corrected, this would render NHTSA's environmental review noncompliant with NEPA and otherwise arbitrary and capricious.

X. REGULATORY FLEXIBILITY ACT – SMALL BUSINESS IMPACTS

NCAT urges NHTSA and EPA to prepare a regulatory flexibility analysis and convene a small business review panel to assess the impacts in accordance with the Regulatory Flexibility

[147] *See* NHTSA, Corporate Average Fuel Economy Standards Passenger Cars and Light Trucks Model Years 2017-2025 Final Environmental Impact Statement (July 2012) at S-6–S-7, *available at* https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy/Final-EIS-for-CAFE-Passenger-Cars-and-Light-Trucks,-Model-Years-2012%E2%80%932016 (2012 EIS).

Act, 5 U.S.C. § 601 et seq., as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

Workhorse Group Inc. (Workhorse), an NCAT member, is a U.S. small business truck manufacturer headquartered in Ohio with a factory located in Indiana. Workhorse currently has approximately 125 employees, and all of those employees and operations are located within the United States. Workhorse will be subject to the NHTSA CAFE standards and EPA greenhouse gas emission standards at issue in the proposed Light-Duty Vehicle Rule. The W-15 is a plug-in range-extended electric drive pickup truck that Workhorse plans to begin producing in 2019. Although Workhorse will be affected by the proposed Light-Duty Vehicle Rule, it was not included in the agencies' list of small domestic vehicle manufacturers in the rule proposal, 83 Fed. Reg. at 43,476 or Preliminary Regulatory Impact Analysis at page 1619. NCAT accordingly requests that Workhorse and similarly situated small business EV manufacturers be consulted with regard to the rule.

NCAT disagrees with the rationale for the agencies' determination in the Light-Duty Vehicle Rule will not have a significant impact on a significant number of small entities (NOSISNOSE). In the proposal, the NOSISNOSE determination appears to be based solely on the conclusion that, while small entities may voluntarily participate in the regulatory program established by the rule, they are otherwise exempt from its requirements. Under EPA's current MY 2021-2025 standards, Workhorse and other small business manufacturers of EVs would be eligible to generate credits by producing vehicles with lower GHG emissions than the standards. Under EPA's proposed revisions to those standards—which would significantly reduce their stringency—Workhorse's opportunity to earn credits would be substantially diminished. In addition, Workhorse will be eligible to earn credits under California's and other CAA Section 177 states' LEV III and ZEV programs. Under EPA's proposal to rescind the 2013 waiver of preemption of such standards, and NHTSA's proposed interpretation of EPCA to preempt such standards, Workhorse's opportunity to earn credits under existing and future state programs would be eliminated. Workhorse considers these actions to have a significant adverse impact on its business and believes that the proposed rule similarly imposes adverse impacts other small entities that produce or will produce EVs covered by the standards.

Accordingly, NCAT urges NHTSA and EPA to prepare a regulatory flexibility analysis and to convene a small business review panel to assess the impacts in accordance with SBREFA, 5 U.S.C. § 609(b). The analysis and panel must fully consider the impact of the proposed rule on Workhorse and other small business manufacturers of electric vehicles and appropriately consider options that would eliminate or mitigate adverse impacts.