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Re: Notice of Proposed Rulemaking for Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, Docket ID No. NHTSA-2023-0022-0004

Rivian Automotive, LLC, ("Rivian") appreciates the opportunity to comment on the proposal (also referred to in this document as the "NPRM") to establish Corporate Average Fuel Economy ("CAFE") Standards for Passenger Cars and Light Trucks for Model Years ("MYs") 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans ("HDPUVs") for MY2030-2035.[1] Our R1T and R1S models are regulated under the CAFE program as medium-duty passenger vehicles ("MDPVs"). Our Class 2b commercial van ("EDV") is subject to the HDPUV standards.

In this moment of heightened concern for American energy security and climate change, the need for a federal policy designed to improve energy efficiency and reduce reliance on petroleum in the American transportation system only continues to grow. Rivian believes that the CAFE program and HDPUV fuel efficiency ("FE") standards can and should continue to play a central role alongside federal greenhouse gas ("GHG") emissions regulation in driving energy efficiency, fuel savings, and a reduced environmental impact from the vehicle fleet.

Rivian welcomes NHTSA's proposals to update and extend the CAFE and HDPUV FE standards. Overall, the proposed rules move in the right direction. With respect to CAFE, statute binds NHTSA's technical feasibility analysis in several ways. Nonetheless, we find that NHTSA should review its analysis for inclusion of Rivian's passenger vehicles in the baseline; weigh greater stringency for light trucks, in particular; and consider certain changes to program flexibilities. More fundamentally, we reiterate previously stated concerns that the agency's statutory limitations threaten the long-term relevance of the CAFE program. Short of congressional action, fresh approaches to setting the standards may still be permissible under the law as currently written. With respect to the HDPUV FE standards, NHTSA should be more ambitious than currently proposed and select the HDPUV14 alternative. The agency should also consider changes to compliance flexibilities and credit trading restrictions.

[1] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158, 56,128-56,390 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537).

Keep the World Adventurous Forever

Founded in 2009, Rivian is an independent U.S. company headquartered in California. With over 14,000 employees across the globe, Rivian's mission is to Keep the World Adventurous Forever. Rivian's focus is the design, development, manufacture, and distribution of all-electric adventure vehicles, specifically pickups, sport utility vehicles ("SUVs"), and commercial vans. Key to the success of our mission, these vehicles will displace some of the most polluting conventional vehicles on the road today.

Rivian brought the first modern electric pickup to market in 2021 when we launched the R1T from our manufacturing facility in Normal, Illinois, followed shortly thereafter by the R1S SUV and the EDV commercial van for Amazon. The R1T and R1S—MDPVs—provide all-electric options in segments where added utility is a necessity. The R1T has an EPA-certified range of up to 410 miles. The R1S is certified at up to 400 miles. The truck features 11,000lbs of towing capacity, while the R1S is a seven-passenger full-sized SUV. Both are well-equipped for off-roading in a range of climates. Separately, our Class 2b commercial van eliminates tailpipe emissions from last-mile delivery. Rivian is committed to producing 100,000 EDVs for our launch customer, Amazon. They currently operate the first 5,000-plus EDVs in more than 500 U.S. cities where they have delivered tens of millions of packages emissions-free.

NHTSA's Proposal Moves in the Right Direction but the Agency Should Consider Several Opportunities to Strengthen the Standards Further

Rivian's mission to Keep the World Adventurous Forever is made manifest in its commitment to the environment and addressing climate change. We strongly support a program of ambitious fuel economy regulation in the transportation sector as core to our values and vision for the world. The transportation sector is the country's leading consumer of oil and the largest single source of greenhouse gas ("GHG") emissions. Fossil-fueled vehicles—especially in the heavier weight classes—also emit significant criteria pollution with negative repercussions for public health. Rivian applauded NHTSA's revisions to the MY2024-2026 CAFE standards in 2021 but because those revisions were primarily about course-correcting a misguided rollback to the standards, additional action was always needed to establish a more ambitious regulatory regime for the years thereafter.

NHTSA has taken that action with its proposals to update both the CAFE and HDPUV FE standards. Rivian welcomes the increased stringency of both proposals. In the CAFE program, specifically, we recognize that the law's prohibitions on considering the fuel economy of alternative fuel vehicles and credit trading significantly limit the agency's assessment of feasible fuel economy improvements. Nonetheless, NHTSA should do everything possible to establish a representative business-as-usual ("BAU") baseline upon which to establish CAFE targets, reform compliance flexibility provisions, and explore its options under the law to expand its analysis. In the HDPUV FE program, NHTSA enjoys much greater flexibility, and we find that the preferred alternative falls short of what the agency's own analysis shows is cost-effectively achievable thanks to rapid electrification in Class 2b-3 applications.

Statutory Constraints Greatly Limit NHTSA's Analysis

In the NPRM, NHTSA identifies PC2LT4 as the preferred alternative and on its face, this appears justifiable in terms of cost-effectiveness. However, we stress that NHTSA does not find more stringent alternatives

technologically infeasible. Further, the agency openly acknowledges that statutory constraints on its analysis result in "real-world compliance costs likely being lower" than modeled.[2] Indeed, manufacturers face fewer and increasingly costly options to comply under the agency's modeling since electrification is not considered. "Because the CAFE statute prohibits us from considering BEVs and full PHEVs' combined fuel economy, we believe manufacturers will find it difficult to improve fuel economy… and maintain a reasonable cost." For smaller cars, in particular, "only the most expensive fuel saving technology options" will be available.[3]

Fortunately, the threshold issue is technological achievability. So long as a given alternative is feasible, the agency is empowered to select it. While the government should of course analyze the costs and benefits of the alternatives under consideration, that analysis can only be of limited value when statutory constraints artificially inflate the costs of compliance. The real-world facts of vehicle electrification and credit-trading among automakers mean that **any preferred alternative that 'pencils out' under the agency's limited analytical parameters is likely to fall short of what the industry can truly achieve while costing more.** Therefore, Rivian urges a relatively greater focus on feasibility rather than cost in determining CAFE stringency.

When Rivian warned in prior comments that the CAFE program risked becoming increasingly irrelevant in an electrified transportation sector, the concerns highlighted above were very much what we had in mind. By MY2032, two-thirds or more of all vehicles sold in the U.S. will be zero-emission vehicles ("ZEVs").[4] Simply ignoring those vehicles in determining how automakers can and should improve fuel economy in their fleets is nonsensical.

Rivian has raised these concerns in prior proceedings, and we reiterate them here by reference to prior comments.[5] While congressional action to amend the law would be most effective and appropriate, both NHTSA and third-party experts have identified potential paths forward within the confines of the law as currently written. Rivian broadly supports a recommendation proposed by the National Academy of Sciences ("NAS") that, absent congressional action, the agency use its existing authority to set standards as a multi-attribute function for LD vehicles. Specifically, the NAS suggests that NHTSA consider the market share of ZEVs as a second attribute and define a mathematical function that will increase the standards as

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[2] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,149.

[3] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,259.

[4] Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 88 Fed. Reg. 87, 29,184-29,446 (May 5, 2023) (revising 40 C.F.R. Parts 85, 86, 600, 1036, 1037, and 1066); BloombergNEF, *Zero-Emission Vehicles Factbook: A BloombergNEF Special Report Prepared for COP27* (November 2022), available at www.assets.bbhub.io/professional/sites/24/2022-COP27-ZEV-Transition_Factbook.pdf; Peter Slowik et al., The International Council on Clean Transportation, and Robbie Orvis and Sara Baldwin, Energy Innovation Policy & Technology LLC, *Analyzing the Impact of the Inflation Reduction Act on Electric Vehicle Uptake in the United States* (January 2023), available at https://theicct.org/wp-content/uploads/2023/01/ira-impact-evs-us-jan23-2.pdf.

[5] See the comments of Rivian Automotive, LLC, under Comment ID No. NHTSA-2021-0053-1562, available online at www.regulations.gov/comment/NHTSA-2021-0053-1562.

the share of ZEVs on-road rises.[6] Alternatively, in the technical support document ("TSD") accompanying the MY2024-2026 rulemaking, NHTSA separately explored the concept of a three-dimensional, multi-attribute function that would establish fuel economy targets as a function of both footprint and the share of work done by electric motors over the test cycle, reflecting the full range of electrification from integrated starter-generators to long-range plug-in hybridization.[7] This approach appears relatively stronger than the NAS proposal given its reliance on vehicle-specific attributes and would seem to fall well within NHTSA's "broad latitude" to define the mathematical function called for by statute, "provided that…the shape of the function reflects legitimate policy goals."[8] NHTSA briefly acknowledges the NAS recommendation in the TSD accompanying this NPRM and we appreciate that the agency apparently considered and ultimately dismissed this approach.[9] But Rivian requests elaboration on the extent to which the agency considered implementing its own alternative approach as described above. Insofar as NHTSA now believes that this, too, would be inconsistent with its current legal authority, we encourage the agency to more fully describe why.

Consider Greater Stringency for Light Trucks

The NPRM proposes to increase CAFE standards at distinct rates for the passenger car ("PC") and ("LT") truck fleets. Rivian supports this approach. We generally agree with the agency that greater opportunities exist to improve fuel economy in the LT fleet and that evidence suggests that in the current market "consumers are less willing and able to absorb significant additional regulatory costs" for PCs than LTs.[10]

It appears that relatively greater LT improvements could also come at a lower cost than those in the PC fleet. Despite our previously articulated concerns about the true usefulness of analyzing compliance costs in the CAFE program, we acknowledge that such estimations will factor into the final determination and are a fact of the proposal. Considering this, we note the agency's analysis shows that manufacturers would incur relatively lower incremental cost increases to comply with more stringent targets in the LT fleet. As modeled stringency increases, average per-vehicle regulatory costs appear to increase relatively less in the LT category. The CAFE Model Documentation shows average per-vehicle costs for PCs increasing 123 percent between PC2 and PC6 but increasing much more modestly—about 75 percent—for LTs from LT4 to LT8. This might partly reflect modeling results that show the LT fleet relying less on strong hybridization

[6] National Academy of Sciences, Engineering, and Medicine, *Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy 2025-2035* (2021), 13-415.
[7] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Technical Support Document: Proposed Rulemaking for Model Years 2024-2026 Light-Duty Vehicle Corporate Average Fuel Economy Standards* (2021).
[8] *Id.*
[9] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Draft Technical Support Document: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond* (July 2023), 1-19.
[10] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,259.

than the PC fleet as stringency increases.[11] In any case, it suggests that additional improvements in LT fuel economy are not just feasible but might also be cost-effective.

	Cost, Passenger Cars ("PC")	PC Cost Increase vs. PC2LT4	Cost, Light Trucks ("LT")	LT Cost Increase vs. PC2LT4
PC2LT4	$1,966	-	$3,502	-
PC3LT5	$2,517	28%	$4,232	21%
PC6LT8	$4,393	123%	$6,118	75%

Table 1. *NHTSA's modeling shows relatively greater increases in costs for PCs than LTs.*[12]

For these reasons, we recommend NHTSA evaluate additional scenarios that modify the preferred alternative by increasing stringency for LTs only. For example, the agency should explore combinations in which standards would increase by 2 percent annually for PCs but 5 or 8 percent for LTs—i.e., PC2LT5 or PC2LT8 in the style used by NHTSA in the NPRM. In particular, the agency's modeling results suggest that LT8 performs well from a cost-benefit perspective and in our view merits further study in combination with the PC2 standard. According to NHTSA, net societal benefits attributed to the LT fleet relative to a no action scenario are in fact greatest under LT8 than any other LT scenario presented—$26.5 billion (3 percent discount rate; average social cost of carbon) versus $21.9 billion in LT4, the next best result.[13] To ensure the agency has selected an alternative that best achieves the CAFE program's objectives and is truly the maximum feasible, NHTSA should model and perform a cost-benefit analysis for additional combinations of stringency as proposed above. The evidence available seems to suggest that there might be opportunities to achieve greater cost-effective energy conservation and emissions reductions from such combinations.

	LT4	LT5	LT8
Total Net Societal Benefits, 3% Discount Rate (billions)	$21.9	$20.6	$26.5
Total Net Societal Benefits, 7% Discount Rate (billions)	$12.9	$11.6	$14.2

Table 2. *Net societal benefits attributed to the LT fleet are in fact greatest under LT8 than any other alternative. NHTSA should examine a PC2LT8 scenario. (Figures are over the lifetime of LT vehicles through 2032 and incremental to the baseline.)*[14]

Ensure Accurate Inclusion of Rivian in the CAFE and HDPUV Baseline Fleets

The agency seems to have accounted for just the passenger vehicle subset of Rivian's production and to have done so entirely within the HDPUV baseline fleet and analysis. Specifically:

[11] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Preliminary Regulatory Impact Analysis: CAFE Data Book (Appendix I)* (July 2023), I-611 – I-613.
[12] *Id.*, I-864.
[13] *Id.*, I-171 – I-173.
[14] *Id.*

- The CAFE model's market data input file does not include Rivian in the 'Vehicles' tab, which includes information about the vehicles sold in the U.S. and should fully capture the MY2022 fleet of LD vehicles that comprise the baseline.[15] Consequently, the LD analysis published in the NPRM does not account for Rivian. Nonetheless, several other all-BEV manufacturers are included (Karma, Lucid, and Tesla).[16]
- The HDPUV analysis market data input file does not include Rivian's commercial delivery van. It does, however, include the R1T and R1S models, listed as belonging to the 2b regulatory class.[17]

NHTSA states that "all Rivian vehicles" will be "reassigned" to the *LD fleet* for the final rule.[18] We could not find a detailed explanation of these fleet assignment decisions or the stated intent to reassign Rivian's products.

[15] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Draft Technical Support Document: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond* (July 2023), 2-14.

[16] See, LD_Central_Analysis.zip → market_data_LD_ref.xlsx, available at www.nhtsa.gov/file-downloads?p=nhtsa/downloads/CAFE/2023-NPRM-LD-2b3-2027-2035/Central-Analysis/. We note that Rivian appears but is grayed out in the "Manufacturers" tab and not assigned a manufacturer code.

[17] See, HDPUV_Central_Analysis.zip → market_data_HDPUV_ref.xlsx, available at www.nhtsa.gov/file-downloads?p=nhtsa/downloads/CAFE/2023-NPRM-LD-2b3-2027-2035/Central-Analysis/.

[18] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Draft Technical Support Document: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond* (July 2023), 2-21.

Manufacturer Code	Manufacturer Name
1	BMW
2	Mercedes-Benz
3	Stellantis
4	Ford
5	GM
6	Honda
7	Hyundai Kia-H
8	Hyundai Kia-K
9	JLR
10	Mazda
11	Mitsubishi
12	Nissan
13	Subaru
14	Tesla
15	Toyota
16	Volvo
17	VWA
18	Karma
19	Lucid
X	Rivian

Table 3. *NHTSA's market data input file lists the manufacturers modeled by the agency for CAFE purposes. Despite producing MDPVs in MY22, the baseline year, Rivian is grayed out and no manufacturer code is assigned. Rather, our volume appears to have been assigned in its entirety to the HDPUV fleet. We did not find an explanation of this treatment in our review of the model documentation and proposal.*

Rivian's current products span both the MDPV and Class 2b segments and should be fully and accurately reflected in the CAFE and HDPUV analyses. Rivian produced and sold four distinct vehicle models in MY22 as recorded in EPA's "Certified Vehicle Models" data.[19] The R1T and R1S are classified as MDPVs and are therefore regulated by CAFE.[20] The two MY22 variants of the EDV were Class 2b vans and would therefore fall under the HDPUV FE program. Unfortunately, we did not identify any substantive discussion of or justification for the misassignment to HDPUV of the R1 models or the omission of the EDV. Rivian would be pleased to meet directly with the agency to discuss our historical and projected production volume, vehicle classifications, and to address any related questions, concerns, or data availability.

[19] U.S. Environmental Protection Agency, "Annual Certification Data for Vehicles, Engines, and Equipment," available at www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment. See, "Certified Vehicle Models (Model Years: 2014 – Present) (xlsx)."

[20] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,359.

We respectfully recommend that NHTSA revise its baseline fleets and subsequent analyses to include the full lineup of Rivian's products in the appropriate categories. This is an important issue not just for the integrity of the analysis but for NHTSA's findings of feasibility in the HDPUV program and achieved fuel economy under the CAFE standards, where improvements to ICE vehicles layer on to a business-as-usual baseline fleet that will include BEVs. **Omitting Rivian's Class 2b vans could have material implications for the agency's final HDPUV proposal** given current and planned production volumes through 2030. **Omitting Rivian's MDPVs could alter the agency's assessment of CAFE performance under the proposed standards.**

Correctly defining the baseline fleet would also have implications for the agency's calculations of baseline ZEV sales in the regulatory period. NHTSA estimates a LD ZEV sales rate in MY32 of approximately 32 percent, largely attributable to state-level ZEV mandates.[21] However, this differs from the estimate produced by EPA in its NPRM for the MY27-32 multipollutant emissions standards and does not seem aligned with independent projections by third parties. EPA estimates approximately 39 percent ZEV sales in MY32 in a "no action" case. ICCT estimates a ZEV sales rate of as much as 67 percent in MY32 absent new regulations and driven largely by the incentives passed into law in the Inflation Reduction Act. Rivian requests additional discussion by NHTSA on the potential explanations for the differences between these estimates.

Enhance the Fuel Savings and Environmental Integrity of the CAFE Program

Phase Out Off-Cycle Fuel Consumption Improvement Values ("FCIVs") for All Vehicle Types

NHTSA proposes to eliminate BEV eligibility for FCIVs after MY2026. We acknowledge the agency's rationale and do not object to the proposed change. Rather, **we recommend that NHTSA eliminate off-cycle FCIVs for all vehicle types beginning in MY2027.**

The agency argues that menu-based off-cycle FCIVs derive their values from technological applications to internal combustion engines ("ICEs"). Therefore, the values "are not appropriate for BEVs" and "aren't representative of real-world fuel consumption reduction" in electrified powertrains.[22] But insofar as this reasoning is valid, Rivian believes it extends beyond the use of FCIVs by BEVs to the continuum of improved ICEs, including mild hybrid electric vehicles ("HEVs") to stronger HEVs and PHEVs. A growing body of evidence calls into question the validity of rewarding any vehicle, regardless of powertrain, for off-cycle fuel consumption improvements or emissions reductions.

[21] Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 88 Fed. Reg. 87, 29,184-29,446 (May 5, 2023) (revising 40 C.F.R. Parts 85, 86, 600, 1036, 1037, and 1066); Peter Slowik et al., The International Council on Clean Transportation, and Robbie Orvis and Sara Baldwin, Energy Innovation Policy & Technology LLC, *Analyzing the Impact of the Inflation Reduction Act on Electric Vehicle Uptake in the United States* (January 2023), available at https://theicct.org/wp-content/uploads/2023/01/ira-impact-evs-us-jan23-2.pdf.

[22] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,369.

We have submitted comments to other rulemaking dockets expressing fundamental concerns with off-cycle credits. For example, we have commented that off-cycle crediting could undermine the environmental integrity of U.S. EPA's GHG regulations.

Concerns about off-cycle technology valuation extend to the CAFE program. If off-cycle technologies are reducing emissions less than previously thought, they are also saving less fuel. An independent study of off-cycle technologies found that they "are still largely without validated real-world benefits."[23] In fact, NHTSA itself acknowledges that "There is not currently a mechanism to confirm that the off-cycle technologies provide fuel savings commensurate with" the menu values and that potentially unjustifiable overvaluation is a growing concern because of synergistic effects and possible overlap between technologies.[24] We note that the agency's sensitivity analysis found greater fuel savings and emissions reductions in a case where the CAFE program mirrored the EPA approach to air conditioning and off-cycle credits by, among other things, reducing the menu cap annually until it reaches zero.[25] Overall, the evidence suggests that this provision of the CAFE program, developed more than a decade ago and based on technology assessments even older than that, has run its course and no longer serves the public interest and objectives of the regulation. **NHTSA should eliminate off-cycle FCIVs for all vehicles beginning in MY27.** However, if the agency elects to finalize a bifurcated approach and maintain off-cycle FCIVs for ICEs for some additional period, **at a minimum we urge NHTSA to accelerate the proposed phasedown suggested in the NPRM by reducing the menu cap to zero by MY30.**

MY	*Rivian's Proposed Menu Cap (g/mi)*
2027	*8*
2028	*6*
2029	*3*
2030	*0*

Table 4. *At a minimum, Rivian proposes phasing down the menu cap for ICE FCIVs more quickly, reaching 0 g/mi in MY30.*

Consider the Tradeoffs in Ending Air Conditioning ("AC") Efficiency FCIVs for BEVs

NHTSA proposes to make BEVs ineligible for AC system efficiency FCIVs beginning in MY27. Rivian appreciates the agency's rationale for making BEVs ineligible for AC efficiency credits but encourages consideration of the tradeoffs.

[23] Nic Lutsey and Aaron Isenstadt, The International Council on Clean Transportation, *How Will Off-Cycle Credits Impact U.S. 2025 Efficiency Standards?* (2018), available at https://theicct.org/sites/default/files/publications/Off-Cycle-Credits_ICCT-White-Paper_vF_20180327.pdf.

[24] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,369.

[25] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Preliminary Regulatory Impact Analysis: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond* (July 2023), 9-14 and 9-43.

As with off-cycle, Rivian believes EPA should maintain parity in its treatment of BEVs and ICEs. AC system efficiency affects a BEV's total energy use just as it affects an ICE's liquid fuel consumption. Making AC efficiency FCIVs available to BEVs incentivizes manufacturers to maintain maximally efficient AC systems in those vehicles, supporting the objectives of the CAFE program and its enabling statutes to reduce energy demand and save fuel. Ultimately, AC efficiency FCIVs for BEVs link to a real-world reduction in energy demand and support the broader goal of improving BEV energy efficiency—an important value even if the benefits cannot be directly measured in gallons of liquid fuel saved.

Rivian understands the agency's argument for eliminating efficiency credits for BEVs but believes this would come at a cost. NHTSA should treat BEVs and ICEs similarly in the case of AC FCIVs. If that requires proposing new BEV-specific AC FCIVs, Rivian encourages NHTSA to do so.

Incorporate EPA's Revised Approach for Modeling the Commercial Clean Vehicle Credit

In its initial modeling, NHTSA did not account for the Commercial Clean Vehicle Credit, also known as '45W,' passed into law as part of the Inflation Reduction Act ("IRA"). But as the agency acknowledges, this decision "may understate the impacts of the IRA" on BEV uptake.[26] Guidance from the Department of the Treasury clarified that qualifying vehicles leased to consumers may qualify for the commercial credit, claimable by the lessor. In other cases, commercial entities purchasing qualifying vehicles may claim the credit themselves.

As a result, a larger universe of consumers could realize cost savings in purchasing or leasing a BEV than initially assumed when NHTSA limited its model to the '30D' Clean Vehicle Credit. This has important implications.

- In the CAFE program, the implications would be limited to the BAU baseline as opposed to any findings of feasibility, though we believe this is still important as the foundation for the agency's modeling of achieved fuel economy.
- In the HDPUV program, however, NHTSA may consider alternative fuel vehicles in determining the standards, meaning that inclusion of 45W in the model would likely only bolster an already strong case for a more stringent alternative (see below for further discussion of Rivian's view that NHTSA should select HDPUV14).

We find that EPA's approach to modeling the credits is reasonable. Taking the same approach would also ensure consistency between the two agencies and their modeling in this regard. NHTSA should phase in the value of the credits as described in the documentation supporting EPA's proposal.[27] We strongly support the NHTSA's stated intention to consult with EPA on implementing the credits in its analysis for the final rule.

[26] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,180.

[27] U.S. Environmental Protection Agency, *Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles: Draft Regulatory Impact Analysis* (April 2023), 2-87.

NHTSA Should Select HDPUV14 and Make Other Changes to Strengthen the HDPUV Program

Rivian welcomes NHTSA's intent to increase HDPUV FE standards beginning in MY30. Statutorily, the agency enjoys greater flexibility in setting HDPUV standards. As a rapidly growing lineup of electric HDPUVs come to market, there is potential for greatly improved fuel economy in the segment.

While the preferred alternative, HDPUV10, certainly represents a step in the right direction, the agency should reconsider and instead finalize HDPUV14 for three key reasons.

1. NHTSA shows that, of the alternatives considered, HDPUV14 delivers the greatest net benefits.
2. The agency's analysis acknowledges that HDPUV14 is feasible.
3. NHTSA does not appear to account for Rivian's Class 2b commercial van or the impact of the Advanced Clean Fleets ("ACF") rule.

HDPUV14 Would Deliver the Greatest Net Benefits

In the documents introducing and accompanying the proposed rule, NHTSA details the results of an extensive cost-benefit analysis performed as part of its deliberations. The agency's own calculations show that of the proposed alternatives, HDPUV14 will deliver the greatest net benefits to Americans. Specifically, the agency found that preferred alternative would result in present value net benefits ranging from $1.44 billion to $2.25 billion (7 percent and 3 percent discount rates, respectively; SC-GHG at 3 percent) while HDPUV14 would result in benefits ranging from $5.45 billion to $8 billion (using the same the discount rates and SC-GHG).[28] Despite these clear findings, NHTSA has proposed a less beneficial alternative—one that ignores HDPUV14's better outcomes for "energy conservation, including fuel consumption and fuel expenditure reduced, energy security, climate effects, and most criteria pollutant effects" and "largest net benefits"—without a persuasive justification.[29]

This is inconsistent with the objectives of the program under law, the Biden Administration's stated goals and priorities, and with the directive of Executive Order 12866, later reaffirmed by Executive Order 13563, that "in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits..."[30] Accordingly, Rivian believes NHTSA should, and is obligated to, select HDPUV14 in its final determination. Finalizing any of the other proposed alternatives falls short of common sense, program goals, and a balancing of the costs and benefits.

HDPUV14 is Feasible

NHTSA clearly documents the feasibility of HDPUV14. Put simply "NHTSA cannot conclude that technological feasibility is necessarily a barrier to choosing any of [the] regulatory alternatives considered in this proposal."[31]

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[28] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,142.
[29] *Id.*, 56,357.
[30] Exec. Order No. 12,866, 58 Fed. Reg. 190 (Oct. 4, 1993); Exec. Order No. 13,563, 76 Fed. Reg. 14 (Jan. 21, 2011).
[31] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,357.

The analysis reveals how the industry might respond to HDPUV14. Model results show that "Under all scenarios… the achieved fleet fuel efficiency exceeds the regulatory standard."[32] This finding holds even at the level of individual manufacturers. Under HDPUV14, vehicle makers "comply in every year… for all three scenarios" except one manufacturer in one year.[33]

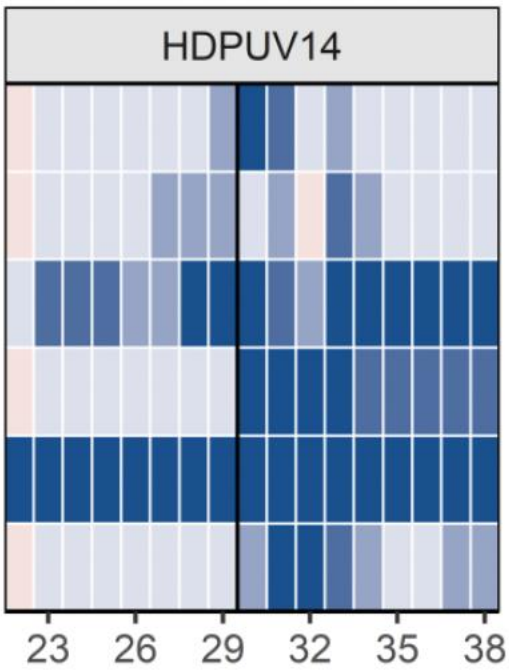

Figure 1. *In this figure reproduced from the agency's analysis, each row represents an HDPUV manufacturer, and each cell a given manufacturer's compliance status per model year. Shades of blue denote increasing overperformance relative to the standard. In NHTSA's model, manufacturers comply with HDPUV14 in all but one case in one year.*[34]

Technology application levels relative to no action appear relatively modest, with manufacturers deploying BEVs at a rate just 3 percentage points higher than they would under the status quo.[35] According to NHTSA's modeling, this would result in an HDPUV BEV sales rate in MY30 of 34 percent.[36] Given rapid growth in the BEV van market and a growing number of states implementing the ACT and ACF regulations, it is quite possible that the requirements would not be binding on industry in this time frame. Indeed,

[32] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Preliminary Regulatory Impact Analysis: Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond* (July 2023), 8-70 – 8-71.
[33] *Id.*, 8-71.
[34] *Id.*, Figure 8-61.
[35] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), Table IV-17, 56,283.
[36] *Id.*

NHTSA acknowledges that the modeled regulatory costs "do not differ by large amounts" between no action and the alternatives.[37]

NHTSA goes so far as to state that "There is likely a credible case to be made for choosing HDPUV14" but dismisses it for a less beneficial alternative. NHTSA does so out of "conservatism" animated by concerns for regulatory stability and the effects of certain sensitivities on the modeled outcomes.[38] We appreciate NHTSA's argument but ultimately do not find it persuasive. This stems in part from our concerns about the potential incompleteness of the agency's modeled fleet (more on this below). But we also note that the agency's reasoning rests on a judgment that the costs shown for individual manufacturers under specific sensitivity cases exceed what NHTSA "would likely conclude was appropriate."[39] While costs should be considered, the agency does not establish a clear test for appropriateness, instead simply deeming that the costs for some manufacturers in some cases are too high in what seem to be subjective judgments. The more objective analytical results demonstrate the benefits of HDPUV14. Given the weight of the evidence, we respectfully urge NHTSA to revisit its conclusion in favor of HDPUV10 and instead select HDPUV14.

NHTSA Does Not Appear to Account for Rivian's Class 2b Commercial Van or the Impact of the Advanced Clean Fleets ("ACF") Rule

The case for HDPUV14 is likely to be even stronger considering the agency's apparent omission of Rivian's commercial van from its analysis. Specifically, the HDPUV analysis market data input file does not include the EDV, our Class 2b van, in the baseline.[40] In MY22, Rivian launched two variants of the EDV, both in the Class 2b category, and we have since produced several thousand units currently in operation with their launch customer, Amazon. We continue to ramp up production to fulfill Amazon's order for 100,000 vans by 2030. We are concerned that omitting the EDV from NHTSA's modeled fleet could have material implications for the agency's feasibility analysis.

Similarly, NHTSA does not appear to account for the effects of California's Advanced Clean Fleets ("ACF") regulation. In our review of the NPRM and supporting documentation, we found no mention of ACF or its impact on the fleet. Yet approximately 142,000 Class 2b-3 vehicles will be subject to the requirements of ACF in California alone and will be required to electrify over the coming years. Additional states could still adopt similar rules. CARB expects ACF to add significantly to the state's medium- and heavy-duty ZEV population above and beyond the impact of the companion ACT rule.[41] NHTSA should assess how ACF implementation, in combination with Rivian's committed BEV van production, contributes to the feasibility of HDPUV14.

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[37] *Id.*
[38] *Id.*, 56,357.
[39] *Id.*, 56,358.
[40] See, HDPUV_Central_Analysis.zip → market_data_HDPUV_ref.xlsx. We note that the baseline includes the R1T and R1S, but that NHTSA plans to reallocate those vehicles to the LD fleet for the final rule. This would appropriately reflect the MDPV classification of the R1 products but would not resolve the omission of the EDV from the modeling.
[41] California Air Resources Board, "Advanced Clean Fleets Regulation Summary," May 17, 2023, available at www.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary.

NHTSA Should Phase Out HDPUV Advanced Technology Vehicle ("ATV") Multipliers on an Accelerated Timeline

In the Phase 2 rule for Heavy-Duty National Program, NHTSA and EPA jointly designed and implemented regulatory provisions awarding a multiplier to ATVs for compliance purposes. We acknowledge that NHTSA only proposes to make technical amendments to the regulations in this rulemaking to clarify that these multipliers remain in effect through MY2027. However, consistent with our feedback to EPA, we encourage the agency to take this opportunity to consider phasing out the multipliers in recognition of a much-changed industry and vehicle technology landscape.

NHTSA originally devised ATV multipliers to encourage the development of ATVs such as BEVs. According to the agency, when first implemented "adoption rates for these [ATVs]…seemed unlikely to grow significantly within the next decade without additional incentives."[42] The costs and benefits of this approach certainly balanced out differently when the incentivized technologies barely existed on a commercial scale.

But that is simply no longer the case in the HDPUV segment. Notably, full electrification of Class 2b-3 vans is well underway with many thousands of units already on the road. With sales of BEV vans growing quickly, a glut of multiplied credits could come into the market before the proposed sunset year of MY27 and result in substantial industry overcompliance with the relatively weak pre-MY30 standards. Because manufacturers may bank credits for use up to five MYs later, industry could enter the new regulatory window in MY30 with an excess of artificially generated surplus credits that meaningfully blunt the impact of the new regulations. We foresee the potential for industry to "slow walk" or even throttle further HDPUV BEV development in this context, especially in the pickup segment. This is not what the agency intended when it originally designed the multiplier provision. NHTSA should reconsider the rules allowing for multipliers.

To address these concerns, we encourage NHTSA to explore whether the statutory lead-time requirements governing the HDPUV program would permit technical modifications to the multiplier values. If so, we recommend a declining schedule of values beginning in MY25 as suggested below, with the value of the BEV/FCEV multiplier stepping down to 2.5 and then 1.5 before sunsetting entirely in MY2027. PHEV multipliers should step down in value to 1.75 and 1.25 in MY25 and MY26, respectively. With these suggestions in mind, we urge the agency to consider amending the multiplier provision.

Technology	MY24	MY25	MY26	MY27
PHEV	3.5	*1.75*	*1.25*	-
BEV	4.5	*2.5*	*1.5*	-
FCEV	5.5	*2.5*	*1.5*	-

Table 5. *Rivian recommends phasing out ATV multipliers on a declining schedule beginning in MY25.*

[42] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,371.

Allow Credit Trading Between MDPVs in the CAFE LT Category and HDPUV Averaging Sets

Under current regulations, credit averaging, banking, and trading ("ABT") provisions are established separately for the CAFE and HDPUV programs. Manufacturers may trade CAFE credits only within the CAFE compliance categories (for example, only within the LT category) in which they are generated.[43] In the medium- and heavy-duty vehicle FE program, under which the HDPUV standards fall, manufacturers may only trade banked credits within the same averaging set (i.e., in the case of HDPUVs, from one HDPUV fleet to another).[44]

NHTSA should consider regulatory amendments that would allow for cross-program trading of compliance credits, specifically between a manufacturer's MDPV fleet within the CAFE LT compliance category and another's HDPUV averaging set. Maintaining a focus on gallons of fuel saved would preserve equivalent oil savings across vehicle categories while allowing for the lowest cost of compliance. NHTSA should establish an adjustment factor to facilitate trades between LT and HDPUV to account for any differences actual oil savings and allow trading between the MDPV LT and HDPUV averaging sets.

Electrification of pickups is leading to a blurring of the boundaries between the light- and medium-duty classes. Accommodating customer needs for utility and towing in a pickup necessitates larger—and thus heavier—batteries. As a result, and as NHTSA acknowledges, "some historic Light Truck applications now being offered as BEVs may be heavy enough to fall outside the Light Truck segment and into the HDPUV segment."[45] Many of these pickups perform work functions in fleet operations—akin to a traditional 'heavy-duty pickup' defined to be part of the HDPUV category—as opposed to serving as daily-use personal vehicles. However, not all these vehicles certify as Class 2b-3 products. Rivian's R1T, certified as an MDPV but nonetheless deployed in commercial fleet operations across the country—is a leading example. NHTSA should allow trading between the LT and HDPUV averaging sets as vehicles classified as HDPUVs could be LTs if not for the added battery mass.

There also exists a 'gray area' in which some MDPVs will serve work functions for fleets while some Class 2b-3 vehicles will in fact operate as passenger vehicles for personal use. In this context, Rivian sees merit in revising credit trading rules at the boundary between LT and HDPUV products.[46] Because of the product overlap and potential for continued spill-over between the categories, allowing manufacturers to trade MDPV LT credits into an HDPUV averaging set or vice versa would be consistent with the 'like-for-like' spirit and intent of the existing trading regulations. It could also support NHTSA's statutory objectives by potentially bolstering the case for more stringent requirements in the HDPUV program. The agency should evaluate new rules permitting credit trading between MDPV CAFE fleets and HDPUV averaging sets.

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[43] 49 C.F.R. 536.8.

[44] 49 C.F.R. 535.7.

[45] Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027-2032 and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030-2035, 88 Fed. Reg. 158 (August 17, 2023) (revising 40 C.F.R. Parts 531, 533, 535, and 537), 56,351.

[46] In its proposal for MY27-32 GHG standards, EPA proposed modifications to the regulatory definition of MDPVs that would scope in additional vehicles that might otherwise fall into this 'gray area.' If EPA finalizes those revisions, it might limit the potential benefits of changing the credit trading rules. This concept would need to be reconsidered in that case. In the meantime, pending a final determination on the proposal to amend the definition of MDPV, we believe it is worth simultaneously considering the changes discussed here. This is one issue among many where NHTSA and EPA will benefit from coordinating their rulemaking actions.

Better Explain Battery Cell Chemistry Assumptions Underpinning the HDPUV Analysis

Rivian appreciates the discussion of battery cell chemistry assumptions in the NPRM and accompanying documentation. Battery costs are an important factor in assessing the relative costs and benefits of regulatory scenarios involving significant electrification, which is relevant to the HDPUV analysis. As such, we encourage the agency to elaborate on the extent to which it considered battery cell chemistry trends as they relate specifically to the HDPUV fleet.

NHTSA assumes that lithium-ion NMC will predominate in the near-term with a fuller transition to LFP batteries likely by the middle or end of the decade.[47] It was not clear to us whether this assessment covered just the LD fleet or HDPUV manufacturers as well. This matters because, from our perspective, the relative costs and benefits of leading battery cell chemistry alternatives will likely favor different application timelines depending on the vehicle segment. For example, generally speaking LFP batteries sacrifice some amount of range in exchange for lower cost, an entirely acceptable tradeoff in the van segment with margin-driven operators and lower daily mileage requirements. The logic of applying LFP in this market is so compelling that it could become the chemistry of choice in the very near term. In fact, Rivian has already transitioned the EDV to LFP batteries. Insofar as this reflects a broader trend across van manufacturers, we might expect to see battery costs fall more quickly in BEV van manufacturing with implications for the agency's cost analysis of stringent HDPUV FE standards. We request more information on NHTSA's battery chemistry assumptions specific to HDPUVs.

Rivian Supports Retaining a Fuel Consumption Value of 0 gal/100 Miles for BEV HDPUVs

Current regulations assign BEV HDPUVs, and the electric operation of PHEV HDPUVs, a fuel consumption value of 0 gal/100 miles for compliance purposes. NHTSA requested comment on this practice and whether a different approach should apply.

While real-world BEV energy consumption does not equal zero, NHTSA should continue to assign a 0 gal/100-mile fuel consumption value to BEV HDPUVs for compliance purposes. The agency has expressed a concern for regulatory stability, and we believe that upending current practice in favor of an as-yet unspecified alternative would introduce additional complexity and uncertainty to the program. If the agency has concerns about potential industry overcompliance with the standards, we reiterate that a more stringent alternative—HDPUV14—is available and feasible, and that phasing out generous ATV multipliers as soon as possible would be another obvious step. Assigning a fuel consumption value of 0 gal/100 miles also better aligns with EPA's approach to upstream emissions accounting for BEVs. We recommend that NHTSA preserve its current approach and retain the 0 gal/100 miles fuel consumption value.

NHTSA Should Revise its Analysis to Finalize the Strongest Possible CAFE and HDPUV FE Standards

Despite some stakeholders advocating for more flexibility and less stringent standards, NHTSA should continue driving improvements in fuel economy and job creation in the U.S. by finalizing the strongest possible CAFE and HDPUV FE standards. That means assessing greater stringency for the LT category,

[47] *Id.*, 56,220-56,221.

phasing out off-cycle FCIVs for all vehicle types, and selecting HDPUV14. Phasing out ATV multipliers for HDPUVs, if permissible, would also strengthen the program.

NHTSA should improve its analysis with full inclusion of Rivian's products in the appropriate baseline fleets and models, which we believe will further support the case for HDPUV14. We support continuing to assign a fuel consumption value of 0 gal/100 miles for BEV HDPUVs.

We thank the agency for its hard work and the opportunity to comment. We would welcome the opportunity to answer any questions or discuss our comments in more detail and look forward to the remainder of the rulemaking process.

Sincerely,

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