No. 24-7001

(and consolidated cases 24-3539, 24-3560, 24-3572, 24-3606, 24-3658, 24-3664, 24-3698, and 24-3728)

IN THE UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

IN RE: NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION, CORPORATE AVERAGE FUEL ECONOMY STANDARDS FOR PASSENGER CARS AND LIGHT TRUCKS FOR MODEL YEARS 2027 AND BEYOND AND FUEL EFFICIENCY STANDARDS FOR MODEL YEARS 2030 AND BEYOND, FED. REG. 52540, PUBLISHED ON JUNE 24, 2024

On Petitions for Review from the United States National Highway Traffic Safety Administration

AMICUS CURIAE BRIEF OF THE BUCKEYE INSTITUTE IN SUPPORT OF PETITIONERS IN LISTED CONSOLIDATED CASES

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INTEREST OF AMICUS CURIAE[1]

The Buckeye Institute was founded in 1989 as an independent research and educational institution—a think tank—to formulate and promote free-market policy in the states. The Buckeye Institute accomplishes its mission by performing timely and reliable research on key issues, compiling and synthesizing data, formulating free-market policies, and marketing those policy solutions for implementation in Ohio and replication across the country. The Buckeye Institute works to restrain governmental overreach at all levels of government. In fulfillment of that purpose, The Buckeye Institute files lawsuits and submits amicus briefs. The Buckeye Institute is a nonpartisan, nonprofit, tax-exempt organization, as defined by I.R.C. section 501(c)(3).

The Buckeye Institute seeks to protect individual liberties, especially those liberties guaranteed by the Constitution of the United States against government overreach. That government overreach increasingly comes in the form of agency rules and regulations. The result is the insulation of important public policy decisions from any political or judicial accountability. This is incompatible with the representative democracy guaranteed by the Constitution. In this case, the National Highway Traffic Safety Administration, and by extension The Department of

[1] No party's counsel authored this brief in whole or in part, and no person other than amicus and their counsel contributed money intended to fund the preparation or submission of this brief. All parties have consented to the filing of this brief.

Transportation, exceeded its statutory authority and ignored key facts and issues to justify a regulatory scheme that American consumers do not want, which Congress has not authorized, and which harms Ohioans and Americans.

SUMMARY OF THE ARGUMENT

The National Highway Traffic Safety Administration ("NHTSA") has attempted to restructure the American car market by forcing electric vehicles on all American consumers. NHTSA purports to do this under the Energy Policy and Conservation Act and the Energy Independence and Security Act, by setting fuel economy standards for heavy-duty pickups and vans ("HDPUV"). But as the State and Industry Petitioners explain in their brief, those standards impose a *de facto* electric-vehicle ("EV") mandate on the businesses that rely on HDPUVs.

For nearly five decades, a cost-benefit analysis of proposed rules by regulatory agencies has been a part of the rulemaking landscape. Cost-benefit analysis in administrative rulemaking provides a much-needed brake on administrative zeal. It injects common sense into the regulatory process by requiring regulators to do what businesses do every day, thus adding transparency and legitimacy to the process. In short, a cost-benefit analysis of a proposed rule assures citizens and courts that regulatory actions are not arbitrary or capricious.

But NHTSA's cost-benefit analysis here is flawed. First, NHTSA wrongly relied on an alleged "market failure," or an "energy paradox," to justify the

extraordinary costs of the rule. NHTSA found it perplexing that American companies have not widely adopted electric vehicles despite the supposed potential savings associated with doing so. But Congress never authorized NHTSA to use this nebulous concept of market failure or energy paradox to impose the government's will upon consumers and manufacturers.

Second, NHTSA improperly relied on an inter-agency report and OMB's revised Circular A-4 to include global rather than the domestic benefits of reduction of "greenhouse gas" emissions. By including those global benefits, NHTSA ignored the well-established presumption that Congressional statutes are primarily concerned with domestic costs and benefits.

NHTSA overstates the rule's benefits, relying on the final rule's highly speculative impact over a 30-year time frame, coupled with opinions based on the arbitrary valuation of intangible benefits rather than scientific facts. NHTSA then uses an inadequate discount rate to create a present value of those benefits 20 years distant.

Finally, NHTSA ignores the harm forced electrification will inflict on the American businesses that rely on these heavy-duty vehicles. Industry commentators have repeatedly raised concerns about the performance, range, and charging capabilities of EVs and the costs, both financial and intangible, that accompany current EVs. Yet NHSTA consistently downplays these costs in its analysis, arguing

in essence, that fuel economy and emission reduction is the ultimate good. NHSTA is of course free to make the policy argument that businesses ought to value fuel economy and emission reduction over performance. But simply dismissing these costs because NHSTA's priorities are different than those of the regulated community robs the regulatory community and all American citizens of an honest and robust cost-benefit analysis.

The Court should hold the rule unlawful and set it aside.

ARGUMENT

I. NHTSA's cost-benefit analysis is deeply flawed.

A. NHTSA wrongly relied on an alleged "energy paradox" in the demand for fuel efficiency to justify the extraordinary costs of the rule.

NHTSA's cost-benefit analysis' fundamental failure is that it overvalues the rule's purported benefits and undervalues the very real costs that it imposes on businesses that rely on the heavy-duty vehicle fleets that the rule regulates.

Rather than confront the comments and objections of the regulated community on their face, NHSTA relies on the idea of an "energy paradox," "energy efficiency gap", or a "market failure" to downplay industry concerns. 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 Van and Model Years 20230 and Beyond, 89 Fed. Reg. 52540, 52662 (June 24, 2024) (hereinafter, "Final Rule"). In NHTSA's view, the costs imposed on

businesses are simply not real—they are rather an illusion that arises from the regulated community's failure to recognize the rule's benefits. Thus, NHSTA finds it paradoxical that existing technologies that reduce fuel consumption are not widely adopted even though the supposed benefits of these technologies outweigh the costs to buyers. *Id.* By focusing on this "energy paradox," "efficiency gap," or "market failure" NHSTA displays a stage magician's talent for misdirection. It pulls viewer's attention away from the issues that are significant concerns for industry and focuses them on the narrow issue of fuel economy.

The "paradox" disappears, however, when one considers that the regulated community's priorities may differ from NHSTA's. While businesses certainly place some value on fuel economy, attributes like performance and reliability figure more prominently in their analysis. Indeed, even NHTSA acknowledges that there is debate if "such a [energy efficiency] gap actually exists and why it might arise." *Id.* Yet NHTSA proceeds on the speculation that it does and uses that speculation to dodge any serious consideration of the Rule's significant costs by limiting the metrics by which costs and benefits are measured to fuel economy and energy efficiency.

NHTSA further dismisses the rule's potential costs by erecting straw men. NHSTA provides a laundry list of *assumptions* as to why American industry has not embraced the brave new world of electric vehicles—"short-termism, principal-agent

split incentives, uncertainty about the performance and service needs of new technologies and first-mover disadvantages for consumers, uncertainty about the resale market, and market power and first-mover disadvantages among manufacturers." *Id.* at 52691. But even accepting NHSTA's characterization of industry's—as well as other consumer's—reasons for EV skepticism, they are not evidence of a "market failure." They are instead a reflection of differing priorities.

For example, multiple commentators complained about NHTSA's, "[avoidance of] the performance issue" and NHTSA's *assumption* that new EVs will be able to perform to a standard close to their conventional counterparts. *Id.* at 52691–692.

Indeed, NHTSA disregarded comments and studies showing that consumers generally value performance (bigger, faster, more powerful vehicles) over more fuel-efficient vehicles. For example, the National Automobile Dealers Association ("NADA") raised concerns that vehicle buyers must forgo enhanced performance to get improved fuel economy. It explained that "[w]hen assessing the value of fuel economy improvements to prospective purchasers, the financial benefits of future fuel savings cannot be separated from the utility lost by necessary reductions to other vehicle qualities and performance." NADA, Comment on Final Rule at 9 (Oct. 16, 2023).[2] According to one study, NHTSA's previous fuel economy mandates

[2] https://www.regulations.gov/comment/NHTSA-2023-0022-58200.

> resulted in foregone performance, upon which consumers placed a value approximately equal to that of any fuel-savings benefits resulting from the standards. And it found that models attempting to assess the new vehicle buying public's willingness to purchase fuel economy, without controlling for performance tradeoffs, likely suffered from omitted variables bias.

Id. According to another study,

> consumers value *both* fuel economy and performance and a marginal gain in performance is valued *roughly three times* as much by the average consumer as a marginal gain in fuel economy. Specifically, consumers behave as if they are willing to pay an average of $1,100 for a 0-60 mph acceleration time that is only one second faster.

Valero Energy Corporation, Comment on Final Rule, Exhibit E (Oct. 16, 2023) (citation omitted) (emphasis in original).[3] Both the NADA and Valero comments were primarily aimed at the broader consumer vehicle market rather than HDPUVs, but these comments highlight the shaky ground on which NHTSA's assertions rest.

NHTSA addressed these concerns by merely pointing to "uncertainty" in the literature and stating that it must *assume* similar performance because to operate off of any other assumption would be unreasonable. Final Rule, 89 Fed. Reg. at 52691. This is an example of NHTSA claiming to take commenters' performance concerns seriously, but simply assuming them away. What results is a Final Rule based largely on *assumptions*: The *assumption* that EV's will be able to perform to the same caliber as traditional HDPUVs, *id.*; the *assumption* that if simply given more information,

[3] https://www.regulations.gov/comment/NHTSA-2023-0022-58547.

businesses would agree with NHTSA's analysis, *id.* at 52661; and the *assumption* that the energy paradox is a valid economic axiom, i*d.* Instead of a firm economic justification for their rule, NHTSA presents a nesting doll of *assumptions*.

Further, nothing in the statutes at issue authorizes NHTSA to use a nebulous concept such as market failure to impose the government's will upon businesses and manufacturers. Congress allowed NHTSA to implement fuel standards that are, "appropriate, cost-effective, and technologically feasible for commercial medium." 49 U.S.C 32902(K)(2). But a framework that assumes that similar performance of EV alternatives is ill-suited to meet Congress's directive. Additionally, the only statutes that reference "market failures" do so in the context of industry annual reports or foreign investments. *See, e.g.*, 12 U.S.C. 635g-1 and 22 U.S.C. 9621. As a result, a speculative concept such as "market failure"—whether labeled as such or as an "energy paradox" or "energy efficiency gap"—is an inappropriate concept for the NHTSA to consider when analyzing the appropriateness or feasibility of a regulation under its statutory authority.

To the extent that NHSTA looks to the Office of Management and Budget's (OMB) revised Circular A-4 to support its avoidance of a real cost-benefit analysis by claiming a "market failure," that reliance is misplaced. *See* Office of Management & Budget, *Circular No. A-4* 19 (2023)[4] ("Revised A-4"). But revised Circular A-4's

[4] https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf.

guidance is neither binding nor are its directives well-founded in the original executive order that established such guidance.

Moreover, Circular A-4 arises out of Executive Order 12866, which was signed to protect against regulatory overreach. The executive order, which required cost-benefit analysis, began with the premise that "The American people deserve a regulatory system that works for them, not against them . . . ." 58 C.F.R. 190 (1993). It emphasized that "regulatory policies [should] recognize that the private sector and private markets are the best engine for economic growth . . . ." *Id.* In 1993, the executive branch recognized that "[w]e do not have such a regulatory system today." *Id.* NHTSA's Final Rule does the opposite of what EO 12866 commands, dismissing the concerns and judgment of the regulated community, denigrating their judgment, and insisting that American industry, which runs on the science of data-based cost-benefit analysis, is not intelligent enough to see the benefit of EVs. If a business's analysis is wrong, the business loses money or closes down. If an agency is wrong, consumers lose money and the agency lives on—usually with no consequences.

Further, Circular A-4 is merely guidance and not binding on the courts. And even A-4's guidance on the use of the so-called market failure theory is limited. It applies to the economic analysis required by Executive Order 12866, and subsequent executive orders, for all new agency actions that are reviewed by OMB. It does not give the NHTSA such broad authority to effectively phase out combustion-engine

vehicles in favor of electric ones. An executive directive cannot override Congress's choice to limit NHTSA's analysis to certain factors. And a "market failure" is not a congressionally authorized factor.

OMB's directive had previously warned against relying heavily on "market failures" as NHTSA has done: "Government actions can be unintentionally harmful, and even useful regulations can impede market efficiency," which is why the order imposes "a presumption against certain types of regulatory action" on that basis. Office of Management & Budget, *Circular A-4* (2003)[5] ("*2003 A-4*"). While government officials "point to instances of apparently imperfect markets and assume that government . . . regulation can seamlessly perfect them," "economists have long doubted this way of thinking." *See* Ryan Bourne, *How 'Market Failure' Arguments Lead to Misguided Policy*, Cato Institute (Jan. 22, 2019).[6]

Further, even assuming that it is a valid framework, NHSTA has "provided no[] actual evidence" of a market failure. *See Am. Pub. Gas Ass'n v. United States Dep't of Energy*, 22 F.4th 1018, 1027 (D.C. Cir. 2022). NHSTA contrives a "market failure" by discounting—even ignoring—the preferences of American businesses. *See* Final Rule, 89 Fed. Reg. at 52690. There is a "market failure," NHSTA contends, because of an "undervaluation of the expected fuel savings." *Id.* NHSTA's

[5] bit.ly/3FXXSo1.

[6] bit.ly/3WE4gGR.

conclusion rests on the notion that business owners do not understand how electric vehicles and other emissions technologies work. *Id.*

NHTSA concluded that businesses do not know what is good for them and labeled that perceived ignorance as a "market failure." *Id.* at 52661. NHTSA's speculation "is not enough to justify" NHTSA's market failure/energy paradox analysis. *Am. Pub. Gas Ass'n*, 22 F.4th at 1027. Assertions of consumer ignorance do not meet an accepted statutory or regulatory definition of "market failure."

B. NHTSA improperly included global benefits in its cost-benefit analysis.

NHTSA's cost-benefit analysis suffers from other significant flaws. One of those flaws was NHTSA's reliance on the global (rather than domestic) benefits from the reduction of ostensible greenhouse gas emissions. To that end, NHTSA explicitly relied on the EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, EPA-HQ-OAR-2021-0317 (2023). And the EPA's conclusions rest primarily on the global metrics. For example, it believes that global impacts will have "direct effects on U.S. citizens and assets located abroad, U.S. business investments overseas, foreign agricultural production shocks affecting U.S. markets," *id.* at 98, that global issues "impact the welfare of individuals and firms that reside in the United States . . . through their effect on international markets, trade, tourism, and other activities," *id.* at 18, and that

"allow[ing] the U.S. to continue to actively encourage other nations, including emerging major economies, to take significant steps to reduce emissions," *id.* at 56.

In expanding its consideration of benefits to global benefits, NHTSA again relied on OMB's recently revised Circular A-4. The revised Circular A-4 authorizes regulatory agencies to balance the domestic costs of regulations with benefits to noncitizens living outside the United States. OMB provided no statutory authorization for agencies to include such benefits during rulemaking cost-benefit analyses for proposed regulations. Indeed, the executive orders underlying A-4 (and its predecessors) have expressed the opposite.

Executive Order 12866, for example, states that it is "vital" that the "regulatory planning and review process" "serves the American people," because "[t]he American people deserve a regulatory system that works for them . . . ." 58 C.F.R. 190. Consistent with that notion, OMB had previously issued a universal instruction that an agency's analysis "should focus on benefits and costs that accrue to citizens of the United States," *2003 A-4*, *supra*. Federal agencies exist to protect the rights and interests of taxpaying Americans, not noncitizens living in other countries. Indeed, "Congress generally legislates with domestic concerns in mind." *RJR Nabisco v. Eur. Cmty.*, 579 U.S. 325, 336 (2016) (quoting *Smith v. United States*, 507 U.S. 197, 204, n. 5 (1993)).

Regardless, NHTSA relied on the EPA determination that the SC-GHG

estimates are "the theoretically appropriate value to use in conducting benefit-cost analyses of policies that affect GHG emissions," but "likely *underestimate*" the global costs of greenhouse gas emissions. Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, *supra*, at 1 (emphasis added). But including global impacts produces drastically different calculations. The initial Interagency Working Group[7] Report from 2008 estimated that the social cost of greenhouse gases ranged from $30 to $46 per ton for 2025. *See* Mimi Drozdetski & Samir Qadir, *Social Cost of Carbon: Seven Takeaways About the Most Important Climate Policy Metric You've Never Heard Of*, PHE (Aug. 24, 2022).[8] But the former administration, which "only factored in domestic damages as opposed to global impacts," estimated costs to range from $1 to $7 per ton. *Id.* In 2021, this number skyrockets back to $53 per ton under the Biden Administration. *Id.* To go even further, in 2020, the New York State Department of Conservation calculated the cost per ton at $125. *Id.* Neither the EPA Report nor the NHTSA Final Rule address these massive disparities.

Including noncitizens—who do not pay for compliance or enforcement costs—in a cost-benefit analysis exaggerates a regulation's benefits while diluting

[7] The Interagency Working Group on the Social Cost of Carbon was created in 2009 with the purpose of devising a consistent metric for governmental agencies to use to determine the monetary damages cause by greenhouse gas emissions. The EPA was among the agencies involved in this effort.

[8] bit.ly/3WLruew.

its costs. As with NHTSA's new rule, noncitizens living abroad bear none of the regulation's costs but arguably reap the purported benefit of cleaner air. Adding noncitizens' benefits to one side of the cost-benefit analysis dramatically skews the results, allowing regulators to consider the regulatory benefits to 8 billion noncitizens while only considering costs imposed on some small fraction of the 337 million U.S. residents who pay the regulatory price tag. *U.S. and World Population Clock*, U.S. Census Bureau (Sept. 4, 2024).[9] In other words, regulated Americans bear 100% of the costs and reap only 4.2% of the benefits.[10]

C. NHTSA's monetization calculation is speculative and scientifically flawed.

NHSTA's cost-benefit analysis also fails because of its highly speculative nature. In other analogous situations, courts evaluate the validity of an expert opinion—here NHTSA—based on "whether the reasoning or methodology underlying the [expert's] testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue." *Daubert v. Merrell Dow Pharms., Inc*., 509 U.S. 579, 592–93 (1993). Moreover, "Scientific methodology today is based on generating hypotheses and testing them to see if they can be falsified; indeed, this methodology is what distinguishes science from other

[9] https://www.census.gov/popclock/.

[10] 337 million U.S. residents divided by the world population of about 8 billion is roughly equal to 4.2%.

fields of human inquiry." *Id.* at 593 (quoting Michael D. Green, *Expert Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of Agent Orange and Bendectin Litigation*, 86 Nw. U. L. Rev. 643, 645 (1992)). NHTSA's cost-benefit analysis does not satisfy the Supreme Court's test.

NHTSA has speculated as to the costs and benefits of the Final Rule for over 20 years, starting in 2030 and forward to 2050. While mythical soothsayers pretend to see 20 years into the future, it is inconceivable that the government can do so accurately. Then NHTSA quantifies unquantifiable, intangible, value-laden "benefits" to inflate the monetary benefits of its rule. It further inflates the benefits using an unreasonably small discount rate of 3%—without any apparent consideration of the impacts of inflation. Final Rule, 89 Fed. Reg. at 52545–546. Based on these stacked and unprovable opinions, NHTSA predicts a 13.6-billion-dollar societal benefit for the designated 20-year period. *Id.* As with any other scenario, the Court should throw out that analysis as speculative and junk science.

First, extended, multi-year projections are seldom more than guesses or speculation. *See, e.g., Goodwin v. MTD Prod., Inc.*, 232 F.3d 600, 609 (7th Cir. 2000) (expert's proffered testimony not admissible because it was based on speculation); *Council of Parent Att'ys & Advocs., Inc. v. DeVos*, 365 F. Supp. 3d 28, 51 (D.D.C. 2019) (noting that "an agency's predictive judgments about the likely economic effects of a rule . . . must be based on some logic and evidence, not sheer speculation"

(quotation marks and citations omitted)). NHTSA is now trying to predict a world in 2050—or over 20 years from now.

In other situations, courts do not accept future projections "based upon 'a multitude of assumptions' that require 'speculation and conjecture.'" *Schonfeld v. Hilliard*, 218 F.3d 164, 172 (2d Cir. 2000) (citation omitted). Here, NHTSA sorted through many speculative projections presented by dozens of "experts" during the notice and comment period and selected its preferred speculations. It speculated as to the availability of electrical power, Final Rule, 89 Fed. Reg. at 52562–563, the cost of battery components, *id.* at 52563–564, consumer preferences, *id.*, and a host of other variables, *id.* NHTSA's predictions of the future should be rejected just as the *Schonfeld* court rejected the predictions presented in that case.

NHTSA then quantified unquantifiable intangibles such as noise costs, congestion costs, health benefits, refueling time benefits, energy security benefits, and climate benefits. *See, e.g., id.* at 52679–680. These are opinions, not scientifically verifiable facts. And different people have different opinions on these intangibles, and those opinions change from month to month and year to year. NHTSA is not using "scientific methodology," it is using "[an]other field[] of human inquiry," *Daubert*, 509 U.S. at 593 (citation omitted), i.e. personal opinion, which cannot justify a regulation under the APA.

Finally, NHTSA's calculation uses a grossly incorrect discount rate of only 3% to calculate its alleged 13.6-billion-dollar benefit. Final Rule, 89 Fed. Reg. at 52550. Future benefits must be discounted to a present value by using a realistic discount rate. The longer the regulatory benefits are projected into the future, the greater the discount rate that is necessary to account for greater time preference, risk, and uncertainty. A twenty-year "intergenerational" benefits timeline strongly suggests a much higher discount rate is appropriate. NHTSA provides calculations based on 3%, and 7%, but ultimately uses the lowest discount rate—the one most beneficial to justifying its rule. *Id.* at 52681. But 7% represents the long run return on capital rooted in over a century of stock market data. Given the speculative nature of NHTSA's predictions, NHTSA should be using at least a 7% discount rate. And the 3% discount rate does not seem to include inflation in its discount rate. The Final Rule's preamble never explains if it considers inflation, or if so, what inflation rate it anticipates over the next 20+ years.

"The public must be able to trust the science and scientific process informing public policy decisions." Barack Obama, *Memorandum for the Heads of Executive Departments and Agencies*, The White House (Mar. 9, 2009).[11] The public cannot trust that the Final Rule is based on science, and neither should the Court.

[11] https://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09.

II. Forced electrification will harm American businesses and the nation's economy.

Electric vehicles are extremely expensive and cost-prohibitive for most Americans. Over 80% of Americans do not want them. *See* Kristopher J. Brooks, *Electric vehicle prices are tumbling. Here's how they now compare with gas-powered cars*, CBS News (June 26, 2024). The same concerns about cost, range, and charging stations that have been expressed by the average American consumer are only exaggerated in the HDPUV market. Yet NHTSA ignored these concerns and the enormous consequences that forced electrification will have on American industry and the entire economy.

Electric HDPUVs come with a price tag so large that a transition would be financially infeasible, if not impossible, even over the span of multiple years. In the general consumer market, EVs cost anywhere between 15% to 25% more than their traditional counterparts. Bart Ziegler, *Commercial Trucks are a Key Part of EV Adoption. What's Holding them Back?,* Wall Street Journal (July 23, 2023).[12] Battery-powered HDPUVs can cost up to *three times* as much as an internal combustion engine. *Id.* As a singular example, the Volvo VNR 300 Diesel's market rate is about $135,000. The Volvo VNR Electric goes for about $470,000. In exchange for the premium cost, a business owner will get a vehicle that (1) weighs

[12] https://www.wsj.com/articles/electric-vehicle-commercial-trucks-diesel-5735875?st=lc6vcqly3s1qfm3&reflink=desktopwebshare_permalink.

more, (2) has less horsepower, and (3) travels around 275 miles on a single charge (the diesel model travels almost 1,000 on a single tank). *Id*.

Additionally, the large cost of transitioning to EV HDPUVs will itself necessitate even larger expenditures in infrastructure and utilities to support the change. Fleets of HDPUVs require electricity—and a lot of it—far more than the current limited apparatus can support. It would require a $57 *Billion* dollar investment to properly distribute charging stations to maximize efficiency in the national supply chain. Roland Berger, *Forecasting a Realistic Electricity Infrastructure Buildout for Medium- & Heavy-Duty Battery Electric Vehicles* 10 (2024).[13] This is merely the tip of the iceberg. Once charging stations are installed along the nation's highways, they, obviously, must be supplied with electricity. The current electrical grid system is simply not equipped for such a task. And, the estimated cost to support these charging stations is $126 *Billion* dollars[14]. *Id.*

NHTSA attempts to refute the necessity of these improvements by asserting that since "the population of the HDPUV fleet is extremely small . . . any potential impact of HDPUV BEV adoption on the electric grid would be similarly small."

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13 https://ata.msgfocus.com/files/amf_highroad_solution/project_2358/2024_03_18_CFC_Final_Results_ExecSummary_VFinal.pdf.

14 This estimate is conservative as it only applies to the replacement of heavy-duty vehicles. When "medium duty" trucks are also considered, which may or may not be covered under the Final Rule depending on their weight, the estimated investment cost skyrockets to $370 billion.

Final Rule, 89 Fed. Reg. at 52563. This assertion is, at best, wishful thinking. The estimated cost to improve the electric grid to support additional electric HDPUVs is $145,000 per vehicle so even if only a small percentage of the current HDPUV fleet is converted to electric, the cost of necessary infrastructure investment easily balloons into billions of dollars. Roland Berger, *supra*, at 5.

NHTSA also asserts that businesses would be able to meet fuel standards in the Final Rule without a total switch to an EV fleet. Final Rule, 89 Fed. Reg. at 52563. Even presuming that this is the case, there are still massive costs associated with mixed fleets. Since different vehicles require different routing and have different capabilities, the operation of a mixed fleet will still increase costs for businesses anywhere between 56% to 67% that must be shouldered by American companies. Ryder Systems, Inc., *Electric Vehicle Total Cost to Transport Analysis* (2024).[15] Aside from the fact that these operational cost increases will likely be passed on to the American consumer, these increases, "could cumulatively add approximately 0.5% to 1% to overall inflation." *Id*.

Beyond normal economic concerns, lithium extraction and production (along with other vital resources) have their own sensitive geopolitical considerations. Most of these raw materials for electric cars, including lithium, come from "insecure"

[15] https://www.ryder.com/globalassets/media/documents/insights/white-papers/fleet-management/white-papers-ryder-ev-study_ada.pdf.

locations. The White House, *Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth* 13, 21 (2021).[16] Specifically, "China currently dominates the global lithium-ion battery supply chain, producing 79% of all lithium-ion batteries[,] . . . 61% of global lithium refining for battery storage and electric vehicles[,] and 100% of the processing of natural graphite used for battery anodes." Elizabeth P. Nevle, *Supply Chain Disruptions in the Energy Industry: Challenges with the Supply of Lithium-ion Batteries*, Foley (Sept. 1, 2022).[17]

The battery life limitations negatively affect consumer interest in EVs. Battery degradation harms consumers who purchase new EVs by decreasing the vehicle's range and value. Ashlyn Brooks, *Gas vs. electric vehicles: Which is cheaper to own?*, Bankrate (Aug. 27, 2024).[18] The rapidly changing technology in EVs also causes them to depreciate faster than gas vehicles. *Id.* Battery degradation harms those who purchase used EVs as well because excessive degradation may require the consumer to replace the battery, which can cost thousands of dollars. Jon Witt, *Electric Car Battery Replacement Costs*, Recurrent (June 24, 2024).[19] But the

[16] https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf.

[17] https://www.foley.com/insights/publications/2022/09/supply-chain-disruptions-energy-lithium-ion/.

[18] https://www.bankrate.com/insurance/car/electric-cars-vs-gas-cars/.

[19] https://www.recurrentauto.com/research/costs-ev-battery-replacement.

government ignores these limitations and consequent legitimate consumer concerns.

CONCLUSION

For the foregoing reasons, this Court should hold the Final Rule unlawful and set it aside.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

1. This document complies with the word limit of Fed. R. App. Rule 29(a)(2) because, excluding the parts of the document exempted by Fed. R. App. P., this document contains 4,766 words.
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/s/ David C. Tryon
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing amicus brief was served on all counsel of record via the Court's electronic filing system this 26th day of November 2024.

Respectfully submitted,

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