ATTACHMENT I

Joint Comments of Center for Biological Diversity, Earthjustice, Environmental Law and Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Safe Climate Campaign, Sierra Club, Southern Environmental Law Center, and Union of Concerned Scientists Re: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks: Draft Environmental Impact Statement

Docket ID No. NHTSA-2017-0069

I. NEPA Background

The National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4331 *et seq.*, "is our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a); *see also WildEarth Guardians v. BLM*, 870 F.3d 1222, 1226 (10th Cir. 2017). NEPA recognizes "the profound impact of man's activity on the interrelations of all components of the natural environment" and declares a continuing federal policy "to use all practicable means and measures ... to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." 42 U.S.C. § 4331(a). NEPA requires federal agencies to weigh the "relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity" as well as "any irreversible and irretrievable commitments of resources." 42 U.S.C. §§ 4332(2)(C)(iv), (v).

Under NEPA, a federal agency must analyze and disclose the environmental impacts, including "ecological ... aesthetic, historic, cultural, economic [and] health" impacts of its actions, including proposed rules, regulations, plans, policies, or procedures, before deciding to take action. 40 C.F.R. §§ 1508.8, 1508.18(a). NEPA serves a dual purpose: to inform decision making, and to disclose information to the public about how a federal action will affect the environment and public health. 40 C.F.R. §§ 1500.1(b), (c); *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371 (1989) ("NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct."). NEPA requires federal agencies to "take a 'hard look' at how the choices before them affect the environment, and then to place their data and conclusions before the public," relying on "democratic processes to ensure … that the 'most intelligent, optimally beneficial decision will ultimately be made.'" *Or. Nat. Desert Ass'n v. BLM*, 625 F.3d 1092, 1099-1100 (9th Cir. 2010) ((citing *Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C.Cir.1971)).

Under NEPA, a federal agency is also required to prepare an environmental impact statement ("EIS") for each proposed "major Federal action[] significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C); *see also* 40 C.F.R. § 1501.4. "*Affecting* means will *or may* have an effect on." 40 C.F.R. §1508.3 (second emphasis added). An EIS must "provide full and fair discussion of significant environmental impacts and ... inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1. An EIS must include, among other things, a detailed description of the purpose and need for the proposed action, alternatives to the proposed action, the affected environment, and the environmental impacts of the proposed action, including any unavoidable adverse environmental effects. 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.10. When preparing an EIS, federal agencies are required to use high-quality information and accurate scientific analysis, and to ensure the professional and scientific integrity of the discussions and analyses therein. 40 C.F.R. §§ 1500.1(b), 1502.24; *Custer Cty. Action Ass'n v. Garvey*, 256 F.3d 1024, 1034 (10th Cir. 2001) (NEPA requires agencies to use "the best available scientific information.") (footnote omitted).

Agencies must include a statement explaining the purpose of and need for the underlying federal agency action. 40 C.F.R. § 1502.13 ("[t]he [EIS] shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action"). They "must look hard at the factors relevant to the definition of purpose," *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), and define their objectives broadly enough to avoid unreasonably narrowing the scope of the action and alternatives for consideration. *See, e.g., League of Wilderness Defs.-Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1069 (9th Cir. 2012); *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 [agency] necessarily considered an unreasonably narrow range of alternatives").

NEPA also requires a federal agency to analyze reasonable alternatives to the proposed action in its EIS. 42 U.S.C. § 4332(2)(C)(iii); 40 C.F.R. § 1502.1. This alternatives analysis is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. Federal agencies must "provide full and fair discussion of significant environmental impacts" and "shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." *Id.* § 1502.1. The alternatives analysis should include "reasonable alternatives not within the jurisdiction of the lead agency." 40 C.F.R. § 1502.14(c). The analysis "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." *Id*. § 1502.14. It must include a "no action" alternative, which provides a baseline for the agency to analyze impacts of the proposed action. *Id.* § 1502.14(d). Agencies must "[r]igorously explore and objectively evaluate all reasonable alternatives ... so that reviewers may evaluate their comparative merits." *Id.* §§ 1502.14(a)-(b). "Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded." *WildEarth Guardians v. BLM*, 870 F.3d 1222, 1227 (10th Cir. 2017) (citing *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 708 (10th Cir. 2009). "The existence of reasonable but unexamined alternatives renders an EIS inadequate." *Friends of Se.'s Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998).

In evaluating the impacts of its proposed actions and its alternatives, an agency must discuss and disclose to the public and decisionmakers the direct, indirect, and cumulative effects "and their significance" of its action. 40 C.F.R. §§ 1502.16(a),(b), 1508.7. Direct effects are those "which are caused by the action and occur at the same time and place" and indirect effects are those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. §§ 1508.8(a), (b). "Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." *Id.* at § 1508.8(b). Cumulative effects are those "which result[] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency ... or person undertakes such other actions" and "can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Further, a federal agency must "evaluate the severity" of adverse environmental effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

To serve NEPA's "twin aims" of informing agency decisionmakers and the public, this evaluation must be in terms that will meaningfully inform these intended audiences of the magnitude and consequences of these effects. *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 97 (1983).

NEPA charges agencies with mitigating the adverse environmental impacts of their actions. *Methow Valley* at 351-52; *Holy Cross Wilderness Fund v. Madigan*, 960 F.2d 1515, 1522-23 (10th Cir. 1992). NEPA's implementing regulations require a federal agency to describe mitigation measures in detail. 40 C.F.R. §§ 1502.14(f), 1502.16(h). The Council on Environmental Quality also has stated:

> All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperation agencies … Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation.

Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,031-32 (Mar. 23, 1981). Mitigation, by definition, includes avoiding impacts, minimizing impacts by limiting them, rectifying the impact, reducing or eliminating them over time, or compensating for them. *See* 40 C.F.R. §§ 1508.20, 1508.25(b)(3).

Executive Order 12898 requires each federal agency to "make achieving environmental justice part of its mission by identifying and addressing ... disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7,629, 7,629 (Feb. 11, 1994). In an accompanying memorandum to federal department and agency heads, President Clinton specifically recognized the importance of NEPA procedures for identifying and addressing environmental justice concerns. Council on Environmental Quality, *Environmental Justice Guidance Under the National Environmental Policy Act* at 1 (Dec. 10, 1997).

For the reasons set forth below, the DEIS fails to comply with these statutes, regulations, orders and case law, is arbitrary and capricious, and should be withdrawn.

II. NHTSA's Purpose and Need Statement is Improperly Narrow and Evades NHTSA's Mandate to Issue Standards that Conserve Energy

When preparing an EIS under NEPA, a federal agency must include a statement explaining the underlying purpose and need to which the agency is responding to in proposing an action and its alternatives. 40 C.F.R. § 1502.13. Although NHTSA, in its "purpose and need" discussion, recites that it must establish corporate average fuel economy (CAFE) standards for MY2022-

2026 passenger cars and light duty trucks at "maximum feasible" levels,[1] it fails to disclose, discuss or heed the key point that the conservation of energy is the prime and overriding mandate under which it operates. This fundamental omission leads to a proposal under which far more energy (some 200 billion gallons of additional oil) would be unnecessarily consumed than under the standards it seeks to replace.[2] Badly misinterpreting its Congressional mandate, NHTSA's Proposal produces the opposite of what Congress has instructed it to accomplish.

a. Background

In 2012, NHTSA and EPA issued a joint rule establishing CAFE and greenhouse gas emission standards for light-duty vehicles for MY2017-2025. 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); 40 C.F.R. § 86.1818–12. NHTSA issued binding CAFE standards for MY2017 through 2021 vehicles under the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA). 49 U.S.C. § 32902. The agency also published "augural" standards for MY2022-2025 because it was prohibited from issuing CAFE standards spanning more than five years. The augural standards "represent the agency's current judgment, based on the information available to the agency today, of what levels of stringency would be maximum feasible in those model years." 77 Fed. Reg. at 62,639.

b. The DEIS' "purpose and need" section is fatally flawed

An agency must draft the purpose and need statement in light of "the views of Congress," based on "the agency's statutory authorization to act, as well as … other congressional directives." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991). NHTSA's duty to issue regulations setting fuel efficiency standards is found in EPCA. It provides that the Secretary of Transportation "shall" prescribe average fuel economy standards for automobiles and set those standards at "the *maximum feasible* average fuel economy level that … manufacturers can achieve in that model year." 49 U.S.C. § 32902(a) (emphasis added).

When Congress enacted EPCA in 1975, it emphasized that the Act's key feature is to promote energy conservation. *See e.g.*, Pub. L. No. 94-163, §2, 89 Stat. 871 (1975) (stating that the purpose of EPCA is to conserve energy supplies through energy conservation programs, and where necessary, to regulate certain energy uses, and provide for improved energy efficiency of motor vehicles). In passing the Act, Congress aimed "*to … reduce domestic energy consumption* … to reduce the vulnerability of the domestic economy to increases in import prices, … [to] decrease dependence upon foreign imports, [to] enhance national security, [and to] achieve the efficient utilization of scarce resources." S. Rep. No. 94-516, at 117 (1975) (Conf. Rep.), *as reprinted in* 1975 U.S.C.C.A.N. 1956, 1957 (emphasis added); *Ctr. for Auto Safety v. Thomas*, 847 F.2d 843, 845 (D.C. Cir. 1988) (en banc) (opinion of Wald, C.J.), *vacated on reh'g on other*

[1] DEIS, at 1-4.

[2] Most of the alternatives the agency is considering, including its Preferred Alternative, would amend the final CAFE standards for MY2021. DEIS, at 1-6. Since the rulemaking is a joint proposal by NHTSA and EPA, if finalized, it would also rescind and replace EPA's greenhouse gas regulations for MY2022-2025 vehicles, which are currently in effect.

grounds, 856 F.2d 1557 (D.C. Cir. 1988). EISA, which amended EPCA to provide additional requirements for NHTSA, confirmed that the statute's purpose is "[t]o move the United States toward greater independence and security, *to increase the production of clean renewable fuels*, to protect consumers, [and] *to increase the efficiency of* products, buildings, and *vehicles* …" Pub. L. No. 110-140, 121 Stat. 1492 (2007) (emphasis added).

In determining how to set maximum feasible standards, NHTSA is to 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." 40 U.S.C. § 32902(f). However, while NHTSA has discretion in deciding how to weigh these factors, it is settled law that none of them may override the need to conserve energy. *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1195 (9th Cir. 2008) ("The EPCA ... gives NHTSA discretion to decide how to balance the statutory factors—as long as NHTSA's balancing does not undermine the fundamental purpose of the EPCA: energy conservation"); *see also Ctr. for Auto Safety v. NHTSA*, 793 F.2d 1322, 1340 (D.C. Cir. 1986) ("Congress intended energy conservation to be a long term effort that would continue through temporary improvements in energy availability. Thus, 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") (footnote omitted). In considering this overriding need for energy conservation, NHTSA must take into account the harmful effects of failing to do so, including "the consumer cost, national balance of payments, environmental, and foreign policy implications of our need for large quantities of petroleum, especially imported petroleum." *See* 77 Fed. Reg. at 62,669.

c. NHTSA unlawfully seeks to nullify Congress' mandate and the purpose of the statute under which it operates – energy conservation

In the Proposal, NHTSA declares that energy conservation simply is no longer necessary, touting increased domestic oil production achieved through new extraction techniques (such as fracking) that themselves carry with them environmental impacts.[3] But the development of new extraction techniques does not alter Congress' explicit mandate to conserve energy. Historically, energy production is cyclical. The present fracking boom shows considerable financial strains as it struggles to become profitable and shed its over-reliance on debt financing,[4] and oil prices continue to fluctuate considerably.[5] The cyclical nature of the oil business is made apparent by the Ninth Circuit's recognition, in 2008, that as of the date of its writing, "[t]he need of the

[3] 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. 42,986, 43,226 (Aug. 24, 2018) ("NPRM").

[4] Bethany McLean, Opinion, *The Next Financial Crisis Lurks Underground*, N.Y. Times, Sept. 1, 2018, available at https://www.nytimes.com/2018/09/01/opinion/the-next-financial-crisis-lurks-underground.html.

[5] Lori E. Hoglund, U.S. Bureau of Labor Statistics, *Gasoline prices: cyclical trends and market developments* (May 2015), available at https://www.bls.gov/opub/btn/volume-4/gasoline-prices-cyclical-trends-market-developments.htm (the oil market is subject to "speculation, price shocks, supply disruptions, and general uncertainty."); see also Oil Industry News, *The Cyclical Business of Oil Price* (Aug. 9, 2015), available at https://www.oilandgaspeople.com/news/4230/the-cyclical-business-of-oil-price/.

nation to conserve energy is even more pressing today than it was at the time of EPCA's enactment." *Ctr. for Biological Diversity v. NHTSA*, 538 F. 3d at 1197-98; *see also Ctr. for Auto Safety*, 793 F.2d at 1338. Simply put, the fact that the need for energy conservation was particularly pressing when EPCA was enacted and that the amount of energy produced fluctuates over time does not allow NHTSA discretion to negate Congress' explicitly stated intent.

Moreover, the need for energy conservation and "maximum feasible" fuel efficiency standards is not only mandated legally, but also remains a fact on the ground today. The United States consumes more energy from petroleum than from any other energy source. In 2017, total petroleum consumption was about 19.7 million barrels per day, 71% of which was consumed by the transportation sector.[6] Despite the current near-record levels of domestic oil production, the nation continues to consume more oil than it produces, and high demand for petroleum attributable in large part to automobiles continues to leave the United States dependent on imported oil.[7] Strong and increasingly stringent fuel economy standards continue to be necessary to decrease consumption and dependence on foreign oil imports.

Specifically, transportation is the second largest energy consuming sector in the United States, representing 28.8% of total energy consumption in the country in 2017. Petroleum provides about 71% of the energy used for transportation.[8] Gasoline is the most consumed petroleum product in the United States (about 47% of total U.S. petroleum consumption or 392 million gallons per day), followed by distillate fuel oil, which includes diesel (about 20% of total consumption, including heating oil), hydrocarbon gas liquids used at oil refineries, and propane used for heating and cooking.[9] In 2017, the U.S. imported approximately 10.1 million barrels per day (MMb/d) of petroleum from about 84 countries.[10] Almost 80 percent of such imports were crude oil.[11] The U.S. Energy Information Administration projects that petroleum will continue to contribute the largest share of total U.S. energy consumption through 2040. While the U.S. projects that it will become a net *energy exporter* by 2022,[12] the country is nonetheless projected to remain a net *oil importer*. This is the case even though the EIA bases its projections on the assumption that the Augural Standards will remain in effect;[13] if NHTSA's Proposal to freeze

---

[6] U.S. Energy Information Administration, *Oil: Crude and Petroleum Products Explained. Use of Oil* (Sept. 28, 2018), *available at* https://www.eia.gov/energyexplained/index.php?page=oil_use

[7] U.S. Energy Information Administration, *Oil: Crude and Petroleum Products Explained. Oil Imports and Exports* (May 1, 2018), *available at* https://www.eia.gov/energyexplained/index.php?page=oil_imports .

[8] U.S. Energy Information Administration, *Oil: Crude and Petroleum Products Explained. Use of Oil* (Sept. 28, 2018), *available at* https://www.eia.gov/energyexplained/index.php?page=oil_use.

[9] *Id*.

[10] U.S. Energy Information Administration, *FREQUENTLY ASKED QUESTIONS: How Much Petroleum Does the United States Import and Export?*, available at https://www.eia.gov/tools/faqs/faq.php?id=727&t=6.

[11] *Id.*

[12] U.S. Energy Information Administration, *Annual Energy Outlook 2018* (Feb. 6, 2018) at 22, *available at* https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf .

[13] NHTSA states that the DEIS relies on CAFE model projections of energy consumption and supply that are based on the Annual Energy Outlook. Based on these projections, NHTSA concludes in the NPRM that "the need of the U.S. to conserve energy may no longer function as assumed in previous

standards as of 2020 were to become final, the reliance on imported oil would necessarily increase over EIA's assumptions. To comply with Congress' mandate, NHTSA must continue to set maximum feasible fuel efficiency standards to decrease the U.S.' dependence on oil, whether foreign or domestic.

In sum, NHTSA lacks any authority to override Congressional intent, and its declaration that energy conservation is no longer necessary has no factual predicate. Its DEIS is fundamentally flawed because it misconceives of and abandons the mandate entrusted to it by Congress, and must be withdrawn.

d. NHTSA misapplied the "technologically feasible" factor and unlawfully ignored the technology-forcing nature of EPCA and EISA.

In the Proposal, NHTSA states that the purportedly diminished need for energy conservation reduces the need to utilize more efficient technology. 83 Fed. Reg. at 43,216.[14] But, Congress created mandatory vehicle fuel economy standards that are intended to be technology forcing, with the recognition that "market forces ... may not be strong enough to bring about the necessary fuel conservation which a national energy policy demands." *Ctr. for Auto Safety*, 793 F.2d at 1339 (citing S. Rep. No. 179, 94th Cong., 1st Sess. 2 (1975)). Indeed, NHTSA itself has previously recognized that the agency is "not limited in determining the level of new standards to technology that is already being commercially applied at the time of the rulemaking." 77 Fed. Reg. at 62,668.

As comments to the NPRM explain in detail, in proposing the Preferred Alternative and other alternatives, NHTSA has artificially constrained the availability of fuel economy technology and the timing for its deployment so that the model in many instances selects more expensive, less fuel efficient technology while excluding less expensive and more efficient alternatives. That more than sufficient technology is in fact available to achieve the current standards is not reasonably debatable, as NHTSA itself has previously concluded. For example, the International Council on Clean Transportation (ICCT) has found improved current technologies combined with emerging technologies can achieve between 8% - 10% greater efficiency improvements as compared to the 2012 assessment by EPA and NTHSA.[15] The artificial constraints NHTSA has devised in its modeling result in its failure to consider not only technology that will be available in the future but also in its sidelining of existing technology, the artificial inflation of costs, and the complete abandonment of the technology-forcing mandate of CAFE standard setting. The agency's Preferred Alternative of freezing fuel economy standards after 2020 and its additional

---

considerations of what CAFE standards would be maximum feasible." 83 Fed Reg. at 43,216. But NHTSA admits that the Annual Energy Outlook forecast *assumes fleet-wide compliance* with the MY2022-2025 augural standards and EPA's GHG standards. DEIS, at 3-8, fn.5; *see also* DEIS, at 3-8. The Annual Energy Outlook data which NHTSA claims justifies its assertion that energy consumption will decrease thus relies on the very standards NHTSA proposes to nullify.

[14] Proposal, 83 Fed. Reg 43,216.

[15] Nic Lutsey et al., *Efficiency Technology and Cost Assessment for U.S. 2025–2030 Light-Duty Vehicles*, International Council on Clean Transportation (Mar. 2017), at iv, *available at* https://www.theicct.org/sites/default/files/publications/US-LDV-tech-potential_ICCT_white-paper_22032017.pdf .

alternatives, all of which decrease fuel economy when compared to the No Action Alternative, apply faulty factual assumptions and irrational modeling, and are contrary to the technology-forcing character of the statute.

e. NHTSA misinterprets "economic practicability"

NHTSA has interpreted "economic practicability" as referring to whether a standard is within the financial capability of the regulated industry, but not so stringent as to lead to adverse economic consequences such as any job losses, safety impacts or the purported elimination of consumer choice.[16] We note, however, that Congress expected that manufacturers might be challenged by the standards. In 1975 Congress was clear that ''a determination of maximum feasible average fuel economy should not be keyed to the single manufacturer which might have the most difficulty achieving a given level of average fuel economy.''[17] In past rulemakings, NHTSA has recognized that EPCA does *not* preclude a CAFE standard that poses considerable challenges to individual auto manufacturers, and that EPCA allows it to set standards that exceed the capability of particular manufacturers as long as the standard is economically practicable for the industry as a whole. 77 Fed. Reg. at 62,668. In any event, even assuming NHTSA had applied the correct legal test, NHTSA's factual predicate for rejecting more stringent standards based on this factor is also erroneous. As we explain in our comments to the proposed rulemaking, NHTSA incorporates error-riddled assumptions about consumer preferences, vehicle attributes, and safety that are all aimed at misrepresenting the augural standards as too costly for industry and consumers. Lastly, no test of "economic practicability" can be upheld unless it also examines the benefits of the proposed action. As explained below, NHTSA has not done so.

f. NHTSA has failed to consider the actions of other agencies

NHTSA correctly recognizes that EPA's greenhouse gas standards constitute "other motor vehicle standards of the Government." 83 Fed. Reg. at 43,209. Indeed, Congress has expressly directed NHTSA to consider EPA's standards, Pub. L. No. 94-163, § 502(e), 89 Stat. 871, and NHTSA has previously done so in setting fuel economy standards.[18] But NHTSA now insists that CAFE and greenhouse gas standards must be harmonized in nearly all respects, including by jettisoning EPA credits for actions that decrease greenhouse gas emissions such as the prevention of air conditioning leakage. Under NHTSA's ill-conceived quest for complete harmonization between its and EPA's regulations, any consideration of EPA's standards is reduced to a one-way ratchet that would force the abandonment of EPA's mandate to reduce harmful greenhouse gas emissions. In a departure from prior practice on fuel economy standards for light-duty vehicles, NHTSA has also improperly assumed that California's separate standards are no longer in effect. 83 Fed. Reg. at 43,210. In sum, the DEIS not only fails properly to consider currently effective regulations issued by EPA, California, and the many other states that have adopted California's standards or that are likely to do so in the future, but assumes that these regulations

[16] DEIS, at 1-4, 83 Fed. Reg. at 43,208.
[17] *Ctr. for Auto Safety v. NHTSA*, 793 F.2d 1322, 1339 (D.C. Cir. 1986) (citation omitted).
[18] 77 Fed. Reg. 62,624; Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25,324 (May 7, 2010).

have been permanently reversed (without modeling a different though reasonably foreseeable outcome). The DEIS is invalid for this reason alone.

In sum, all alternatives that weaken the 2021 CAFE standard, flatline the 2022-2025 augural standards, and fail to increase the fuel efficiency of MY2026 standards over those for MY2025 are directly contrary to the statutory mandate NHTSA must fulfill. As shown in the table below, all of the alternatives would increase fuel consumption with respect to the No Action Alternative, and all therefore are inconsistent with NHTSA's statutory mandate.

	Alt. 0 No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Fuel Consumption									
Cars	1,313	1,429	1,425	1,418	1,411	1,385	1,372	1,353	1,358
Light trucks	1,566	1,655	1,646	1,641	1,625	1,612	1,601	1,581	1,590
All light-duty vehicles	2,878	3,084	3,071	3,059	3,036	2,997	2,973	2,935	2,948
Increase in Fuel Use Compared to the No Action Alternative									
Cars		116	112	105	99	72	59	40	45
Light trucks		90	80	76	59	47	35	16	24
All light-duty vehicles		206	192	181	158	119	95	56	69

Fuel Consumption and Increase in Fuel Use by Alternative (billion gasoline gallon equivalent total for calendar years 2020-2050).[19]

NHTSA's unlawful re-weighing of EPCA's statutory factors would nullify, by agency fiat, the Congressional mandate to conserve energy. Accordingly, the DEIS must be withdrawn.

III. NHTSA Failed to Consider a Reasonable Range of Alternatives

Under NEPA, agencies must consider "alternatives to the proposed action." 42 U.S.C. § 4332(2)(C)(iii). The analysis of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. In considering alternatives, NHTSA shall "[r]igorously explore and objectively evaluate *all* reasonable alternatives." *Id.* at § 1502.14(a) (emphasis added). An agency must follow the "rule of reason" when preparing an EIS, and "this rule of reason governs 'both *which* alternatives the agency must discuss, and the *extent* to which it must discuss them.'" *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 195 (citation omitted).

> Agencies "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public," including a "no-action" alternative ... Agencies must "rigorously explore and objectively evaluate" these alternatives "so that reviewers may evaluate their comparative merits." ... "Without substantive, comparative environmental impact

[19] DEIS, at S-6.

> information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded."

Wildearth Guardians v. BLM, 870 F.3d at 1226-27 (internal citations omitted).

In its scoping notice, NHTSA initially indicated that it would consider four alternative CAFE standards for passenger cars and four alternatives for light trucks: a no action alternative, action alternatives representing the lower bound and upper bound of the range of reasonable fuel economy standards, and a preferred alternative reflecting its proposed determination of the maximum feasible fuel economy standards. In the DEIS, NHTSA included a No Action Alternative, a Preferred Alternative, and seven additional alternatives "to cover the range of complexity of this action."[20]

The DEIS presents eight alternatives which the agency has concluded are consistent with the stated purpose and need of the action it is considering, and which it claims represent permissible ways of balancing the statutory factors under EPCA.[21] As we explain below, these alternatives do not express a reasonable range.

- Alternative 1, the Preferred Alternative, would require a 0.0 percent average annual fleet-wide increase in fuel economy for MY2021–2026; in other words, it would "freeze" the standards after year 2020. This alternative would change the MY2021 standards to weaken them to the MY2020 levels and maintain the MY2020 standard through MY2026.
- Alternative 2 would require a 0.5 percent average annual fleet-wide increase in fuel economy for both passenger cars and light trucks for MY2021–2026.
- Alternative 3 would require a 0.5 percent average annual fleet-wide increase in fuel economy for both passenger cars and light trucks for MY2021–2026, and would also phase out AC and off-cycle credits beginning in MY2022 and fully eliminate them in MY2026.
- Alternative 4 would require a 1.0 percent annual fleet-wide increase in fuel economy for passenger cars and a 2.0 percent increase for light trucks for MY2021-2026.
- Alternative 5 would require a 1.0 percent average annual fleet-wide increase in fuel economy for passenger cars and a 2.0 percent increase for light trucks for MY2022-2026, without changing the current MY2021 standard.
- Alternative 6 would require a 2.0 percent average annual fleet-wide increase in fuel economy for passenger cars and a 3.0 percent average annual increase for light trucks for MY2021-2026.
- Alternative 7 would require a 2.0 percent average annual fleet-wide increase in fuel economy for passenger cars and a 3.0 percent increase for light trucks for MY2021-2026, and would also phase out AC and off-cycle credits beginning in MY2022 and fully eliminate them in MY2026.

[20] DEIS, at 1-28.
[21] DEIS, at S-3.

- Alternative 8 would require a 2.0 percent average annual fleet-wide increase in fuel economy for passenger cars and a 3.0 percent increase for light trucks for MY2022-2026, without changing the current MY2021 standard.

We note that most of the stated alternatives would set fuel efficiency standards for six years, from 2021 through 2026, even though EPCA restricts NHTSA to setting standards for no more than five model years. 49 U.S.C. § 32902(b)(3)(B). We comment on this illegal overreach in our comments to the NPRM.

These alternatives (combined for passenger cars and trucks) are presented in tabular form below. All alternatives under consideration would decrease fuel economy requirements when compared to the No Action Alternative. Under the proposed alternatives, the combined fleet-average fuel economy standard ranges from 36.9 to 39.0 mpg in MY2021 and 37.0 to 44.3 mpg in MY2026. Each would represent a vast step backward when compared to the estimated fleet-average fuel economy levels of 39.0 mpg in MY2021 and 46.8 mpg[22] in MY2025 under the No Action Alternative (the augural standards).[23]

Model Year	Alt. 0 No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Projected required mpg									
MY 2021	39.0	36.9	37.1	37.1	37.5	39.0	37.9	37.9	39.0
MY 2022	40.8	36.9	37.3	37.3	38.1	39.6	38.9	38.9	40.0
MY 2023	42.7	36.9	37.5	37.5	38.7	40.2	39.9	39.9	41.0
MY 2024	44.7	37.0	37.7	37.7	39.3	40.8	40.9	40.9	42.1
MY 2025	46.8	37.0	37.9	37.9	39.9	41.5	42.0	42.0	43.2
MY 2026	46.8	37.0	38.1	38.1	40.6	42.1	43.1	43.1	44.3

mpg = miles per gallon; MY = model year

Projected Average Required Fleet-Wide Fuel Economy (mpg) for Combined U.S. Passenger Cars and Light Trucks by Model Year and Alternative.[24]

As we point out in our comments to the NPRM, a voluminous evidentiary record demonstrates that standards more stringent than the No Action Alternative are feasible and cost-effective. In light of that record, the alternatives examined in the DEIS do not represent a range of *reasonable* alternatives that would meet the agency's stated purpose and need, consistent with EPCA, EISA, and NEPA requirements. None of these alternatives increases fuel economy in comparison with

[22] We note that 46.8 miles per gallon that NHTSA projects for MY2025 under the Augural Standards departs widely from the 49.7 NHTSA projected for that year in its 2012 FEIS. NHTSA, Corporate Average Fuel Economy Standards Passenger Cars and Light Trucks Model Years 2017-2025, Final Environmental Impact Statement (July 2012) ("2012 Final EIS"), at S-7, 2-12. The fact that the 2012 estimate has been missed constitutes an additional reason why the standards must be strengthened. We reserve the right to comment on the divergence between the 2012 and 2018 estimates in supplemental comments.

[23] DEIS, at 1-7.

[24] DEIS, at S-4.

the No Action Alternative, none conserves energy, and none represents maximum feasible CAFE standards.

a. The inclusion of the augural standards as the No Action Alternative is appropriate

NEPA regulations require agencies to include a ‘‘no-action’’ alternative in their environmental impact statements, and to compare the environmental impacts of not taking action with a reasonable range of action alternatives so that each alternative's environmental impacts becomes clear. 40 C.F.R. § 1502.14(d). In the Scoping Notice, NHTSA indicated that it was considering a "baseline" that assumed that the agency "would issue a rule that would continue the current CAFE standards for MY2021 indefinitely." 82 Fed. Reg. at 34,742.

NHTSA's decision to abandon the baseline suggested in the scoping notice and to adopt the augural standards for MY2022-2025 as the No Action Alternative for this analysis is appropriate. The current approach reflects both NHTSA's decision, in the augural standards, about where to set CAFE standards for MY2022-2025, and its most recent final EIS for the CAFE standards that also presented and analyzed the augural standards.[25] It also reflects the conclusions of the 2016 Draft Technical Assessment Report ("TAR"). The status quo for MY2022-2025 today is not the MY2021 CAFE standard, but EPA's greenhouse gas standards for MY2022-2025 for light-duty vehicles and California's Advanced Clean Cars Program regulations, which have been adopted in 12 other states and are consistent with the augural standards. Ignoring existing, enforceable law to set a phantom baseline in 2021 would have been clear legal error.

We note, however, that although NHTSA vaguely mentions that it "may still select the No Action Alternative" (which is the only alternative that would not increase environmental harm as compared to the augural standards, and EPA's and California's currently effective vehicle greenhouse gas regulations for MY2017-2025), NHTSA has selected the most environmentally damaging alternative (Alternative 1) as its preferred course of action. NHTSA never discusses actually adopting the No Action Alternative, never discloses or explains the reasons for proposing the most harmful alternative as its Preferred Alternative, and refuses to even consider adopting any alternative other than the one it prefers as a mitigating step. (See discussion in section VII, "Mitigation," below). The NPRM itself nowhere contemplates the No Action Alternative as a regulatory option. The failure to analyze and consider the adoption of the "No Action" alternative is unreasonable and capricious.

b. Proposing only action alternatives that decrease fuel efficiency violates EPCA and NEPA

Under the "rule of reason" governing NEPA's preparation of an EIS, an agency "may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action." *Citizens Against Burlington*, 938 F.2d at 196 (citing *City of New York v. Dep't of Transp.*, 715 F.2d 732, 743 (2d. Cir. 1983); *Friends of Se.'s Future v. Morrison*, 153 F.3d

[25] DEIS, at 1-15; 2012 Final EIS, at 1-7.

1059, 1066 (9th Cir. 1998). Even under the faulty assumptions permeating the NPRM and DEIS (which systematically understate their environmental harm), none of the proposed action alternatives NHTSA has examined could conceivably be described as environmentally "benign." Instead, by proposing only those alternatives that reduce fuel efficiency compared to the No Action Alternative, NHTSA has unlawfully defined the range of alternatives so narrowly that all of them would accomplish NHTSA's predetermined goal of nullifying Congress' intent to conserve the nation's energy.

NHTSA's consideration only of this cramped range of alternatives is fundamentally at odds with any reasonable notion of the meaning of maximum feasible standards that manufacturers can achieve in a given model year. 49 U.S.C. § 32902(a). Proposing as the Preferred Alternative the least fuel-efficient of all is most contrary to this statutory requirement—especially given the agency's projection that market forces alone will drive fuel economy increases beyond those required by the Proposal.[26] Most importantly, presenting only action alternatives that decrease fuel efficiency is directly contrary to EPCA and EISA's core focus on conserving energy. *Ctr. for Auto Safety v. Thomas*, 847 F.2d at 845; *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d at 1219 ("[s]ince EPCA's overarching goal is energy conservation, consideration of more stringent fuel economy standards that would *conserve more energy* is clearly reasonably related to the purpose of the CAFE standards") (emphasis in original).

NHTSA states that it has not analyzed more stringent alternatives "because the agency believes that such ... alternative[s] would, after careful balancing of EPCA's four statutory factors, fall well outside the range of the maximum feasible level."[27] This cursory pronouncement is directly contradicted by NHTSA's own analysis, which predicts that fuel economy will continue to increase due to market forces by themselves,[28] and thus does not meet the rule of reason. It is also contrary to NHTSA's own conclusions, and those of EPA and California, in 2012 and 2016, and NHTSA's complete failure to explain its changed policy (including its abandonment of prior factual findings) renders the statement arbitrary and capricious. *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515-16 (2009). But NHTSA's discretion in balancing the statutory factors for its own policy reasons is limited: it may do so only to the degree that it does not prioritize them over the core focus of EPCA—energy conservation. *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1194, 1197-98 (9th Cir. 2008).

NHTSA's decision not to include any alternatives that are more stringent than the current MY2017-2025 greenhouse gas standards is also contrary to its own 2012 Final EIS for those standards, which did consider more stringent alternatives than those the agency adopted. In the 2012 Final EIS, NHTSA analyzed a range of action alternatives with fuel economy stringencies that increased on average 2 to 7 percent annually from the MY2016 standards for passenger cars and light trucks.[29] In its 2017 Mid-Term Evaluation of its greenhouse gas standards for MY2022-2025, which is based on a robust technical record that includes the Draft TAR co-authored by

[26] Proposal, 83 Fed. Reg. at 43,179.
[27] DEIS, at 2-11.
[28] 83 Fed. Reg. at 43,179.
[29] 2012 Final EIS, at 2-10.

NHTSA, EPA concluded that more stringent standards than those in effect for MY2017-2025 are in fact feasible and less costly than initially estimated:[30]

> The EPA found in 2012 that the projected standards were feasible at reasonable cost, and the current record shows that the standards are feasible at even less cost and that there are more available technologies (particularly advanced gasoline technologies) than projected in 2012, and that the benefits outweigh the costs by nearly $100 billion. These factors could be the basis for a proposal to amend the standards to increase the standards' stringency. Moreover, one could point to the overall need to significantly reduce greenhouse gases in the transportation sector even further, especially given expected growth in vehicle travel.[31]

Other than to cursorily announce that more stringent alternatives are not within a reasonable range, NHTSA never explains in the DEIS why more stringent alternatives are now not presented, nor why the alternatives it previously presented can no longer be considered within that range.[32] NHTSA's refusal to consider any alternative that increases fuel efficiency standards beyond the No Action Alternative falls short of NEPA's mandate to "[r]igorously explore and objectively evaluate all reasonable alternatives." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 708 (10th Cir. 2009) (quoting 40 C.F.R. § 1502.14(a)). Courts have frequently invalidated agency NEPA reviews that fail to consider alternatives providing sufficiently varying degrees of environmental protection. *Id.* at 711 (BLM violated NEPA by refusing to consider an alternative closing planning area to future oil and gas leasing); *Nat. Res. Def. Council v. U.S. Forest Serv*, 421 F.3d 797, 814 (9th Cir. 2005) (agency violated NEPA by refusing to consider alternatives that allocated less than 50 percent of roadless areas for development). In addition, NHTSA's failure to discuss the reasons why it eliminated more stringent alternatives from the DEIS even though it analyzed them in the 2012 Final EIS violates NEPA's regulations requiring an explanation for eliminating alternatives from that detailed study. 40 C.F.R. § 1502.14(a).

The range of alternatives proposed also fails the essential purposes of a DEIS by flouting NHTSA's obligation to "inform decisionmakers and the public of the reasonable alternatives *which would avoid or minimize adverse impacts or enhance the quality of the human environment*." 40 C.F.R. § 1502.1 (emphasis added). All that NHTSA does here is to propose alternatives that worsen the light duty fleet's adverse environmental and health impacts. We again note that (as will be explained in greater detail below) the data NHTSA presents in fact vastly underestimates the alternatives' harmful environmental effects, as they are derived from faulty modeling and unsupported assumptions. But even a review of what NHTSA does present demonstrates the drastic environmental damage all of the action alternatives would inflict.

[30] Ultimately, EPA decided not to commence a rulemaking to strengthen the standards based on concern about industry certainty, but not because stronger standards were not feasible or cost-effective. 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), at 8.
[31] *Id*. at 30.
[32] DEIS, at 2-4 - 2-5.

NHTSA admits that all criteria pollutants and some toxics would increase when compared to the No Action Alternative. The DEIS also concludes that the action alternatives would result in increased incidence of adverse health impacts due to particulate matter ($PM_{2.5}$) pollution, including premature mortality, acute bronchitis, respiratory emergency room visits, and work-loss days,[33] with the Preferred Alternative being the worst option of all. (As we explain below, these effects are largely underestimated). As for climate pollutants, all of the alternatives would result in large increases in CO_2 emissions when compared to the No Action Alternative, with – according to NHTSA itself – total emissions increases ranging from 1,800 $MMTCO_2$ (Alternative 7) to 7,400 $MMTCO_2$ (Alternative 1) by 2100, resulting in increases in atmospheric CO_2 concentrations, temperatures, precipitation, and sea-level rise.[34]

Because it lacks a reasonable range of alternatives that avoids or minimizes these impacts, the DEIS, if finalized as proposed, would violate NEPA. NHTSA must withdraw this document and analyze in detail a set of alternatives that strengthen rather than weaken fuel economy, prepare a new DEIS, and submit it for public comment.

c. NHTSA must consider alternatives that are more stringent than the augural standards

The disclosure and discussion of more stringent alternatives is necessary to effectuate NHTSA's statutory mandate and to comply with NEPA, "our national charter for protection of the environment." *Wildearth Guardians v. BLM*, 870 F.3d at 1226 (quoting 40 C.F.R. § 1500.1(a)). While NEPA does not require agencies to analyze alternatives that have "in good faith [been] rejected as too remote, speculative, or impractical or ineffective," it does require enough information to allow a "reasoned choice of alternatives as far as environmental aspects are concerned." *New Mexico ex rel Richardson v. BLM*, 565 F.3d 683, 708 (10th Cir. 2009) (citation omitted). *See also* 40 C.F.R. § 1502.1 (an environmental impact statement "shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.")

More stringent alternatives than those that NHTSA has proposed (including alternatives more stringent than the augural standards, which NHTSA is not considering as a true alternative) serve the DEIS' purpose and need. They would meet EPCA's mandate to promote energy conservation as well as NEPA's requirement that agencies avoid or minimize impacts and enhance the quality of the human environment.

In the 2012 Final EIS, NHTSA analyzed a range of alternatives with an upper bound of 7 percent annual increase in fuel economy.[35] At a minimum, NHTSA must analyze that 7 percent alternative now as well. Given that the most recent record resulting from the mid-term review shows that the CAFE standards are feasible at lower cost than estimated in 2012, and that there is a wider range of technologies available for compliance, NHTSA must also analyze more stringent alternatives than the augural standards. In our comments to NHTSA's Scoping Notice,

[33] DEIS, at S-7 - S-8; S-18; 2-26 - 2-27; Ch. 4.
[34] DEIS, at S-18 - S-19.
[35] 2012 Final EIS, at 2-10.

several of the undersigned groups requested that NHTSA use an upper bound of 8 percent annual increase in fuel economy, based on an analysis from the American Council for an Energy-Efficient Economy (ACEEE) prepared as part of its comments to the Draft TAR. That analysis presents the results of employing the Volpe model as used by NHTSA in 2012 and 2016 to run fuel economy stringencies higher than the augural standards based on real world settings.[36]

As ACEEE explained in those comments, employing the Volpe model as NHTSA did for the 2016 TAR shows that the augural standards fall well below the rate of increase that leads to the largest net benefits. While the augural standards deliver net benefits of $85 billion, higher annual increases would create even larger net benefits.[37] NHTSA's most stringent alternative must be set at no lower than a 9 percent improvement per year.

Net Benefits of MY 2022-2025 Standards over Lifetime of MY 2016-2028 Vehicles

Scenario	Net Benefit ($b)
%/year improvement	
Augural	$ 85
6%	$ 116
7%	$ 124
8%	$ 136
9%	$ 145
10%	$ 142
11%	$ 133
12%	$ 92

Source: ACEEE Volpe model runs

Source: Addendum to ACEEE Comments to Technical Assessment Report (filed Nov. 17, 2016), available at https://www.regulations.gov/document?D=NHTSA-2016-0068-0098

NHTSA has also failed to include and analyze action alternatives that retain California's GHG standards and its ZEV mandate. As the Joint Commenters note in comments to the NPRM, the Proposal would unlawfully promulgate regulations declaring that California's waiver under section 209 of the Clean Air Act for its GHG and ZEV Programs is preempted by EPCA. In addition, EPA has proposed to revoke California's waiver under Section 209 of the Clean Air Act. As the Joint Commenters fully explain there, EPCA unambiguously does not preempt California's waiver, and EPA lacks authority to revoke California's lawfully-issued waiver. The proposed action alternatives, however, appear to assume that these regulations, currently in effect in California, the District of Columbia, and the 12 states that have adopted California's regulations pursuant to Section 177 of the Clean Air Act, will not exist while the proposed standards are in effect. But NHTSA cannot simply assume that these regulations will cease to

[36] Addendum to ACEEE Comments to Technical Assessment Report (filed Nov. 17, 2016), available at https://www.regulations.gov/document?D=NHTSA-2016-0068-0098
[37] *Id.* at 2.

exist, which would improperly assume the outcome of a proposal that is currently open for comment. Among the set of more stringent alternatives that NEPA requires the agency to consider, NHTSA must include action alternatives that retain the standards California and other states have lawfully adopted.

Based on the robust record and findings resulting from the mid-term review of the standards, more stringent alternatives are reasonable and "technically and economically practical or feasible and meet the purpose and need of the proposed action." *Union Neighbors United, Inc. v. Jewell*, 831 F.3d 564 (D.C. Cir. 2016) (citing 43 C.F.R. § 46.420(b)). They also fall well within the range of what is the maximum feasible under EPCA. NHTSA must present them in any new DEIS once the current version has been withdrawn.

IV. NHTSA Failed to Take a Hard Look at Direct, Indirect and Cumulative Impacts

In connection with a major action affecting the quality of the human environment such as this one, NHTSA is required to prepare a "detailed statement" discussing and disclosing the environmental impacts of that action. 42 U.S.C. § 4332(2)(C).

To perform this task, NHTSA must "take a 'hard look' at the environmental consequences of its actions, including alternatives to its proposed course." *Sierra Club v. FERC*, 867 F.3d 1357, 1367 (D.C. Cir. 2017) (quoting *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council,* 462 U.S. 87, 97 (1983)); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). When undertaking its analysis, NHTSA must also "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." 40 C.F.R. § 1502.24.

Here, NHTSA not only fails to take the requisite "hard look" at the effects of its proposed action and its action alternatives, but frequently mischaracterizes very large increases in fuel combusted and greenhouse gases emitted as decreases by deploying a false comparison. While it does sometimes measure its action alternatives against the No Action Alternative, it also compares them to what it calls "current levels" of fuel efficiency and emissions. For example, NHTSA claims that "[u]nder the alternatives analyzed in this EIS, fuel economy is expected to *improve* compared to current levels under each alternative."[38] Plainly, however, all alternatives NHTSA proposes do the opposite when correctly compared to the No Action Alternative. Moreover, "current levels" are undefined; even if they were intended to mean MY2021 levels (the last year before the augural standards), NHTSA's assertion is erroneous as to its Preferred Alternative, which would freeze the standards as of MY2020, and as to the other alternatives (2 to 7) that would reduce efficiency for MY2021 vehicles below the existing standard. In addition, as

[38] DEIS, at 2-24 (emphasis added). Additional examples are at 4-47 ("Under any alternative, total emissions from passenger cars and light trucks are expected to decrease over time compared to existing conditions."); at 4-47 ("[U]nder any alternative the total health effects of emissions from passenger cars and light trucks are expected to decrease over time compared to existing conditions."); and at 5-28 ("[A]ll of the action alternatives would result, to a greater or lesser extent depending on the alternative, in reductions in GHG emissions on a per-vehicle basis compared with current conditions.").

discussed below, NHTSA has strayed far from ensuring the professional or scientific integrity of the data upon which it relies, and the manner in which it presents them, by devising erroneous assumptions of "scrappage" and the rebound effect, among others, that make gallons of fuel consumed and millions of tons of pollution emitted vanish into thin air.

a. Direct/indirect impacts

i. Erroneous model assumptions prevent a hard look at the environmental impacts of the Proposal and its alternatives

A number of erroneous assumptions in the NPRM profoundly distort the environmental impacts of all action alternatives by understating the amount of fuel that the fleet will consume and thus also understating the effects on air quality, health, and greenhouse gas emissions. When the introduction of faulty assumptions into modeling underlying an agency's analysis of its Proposal makes its results inaccurate, the analysis does not comply with NEPA, is arbitrary and capricious, and requires the analysis to be vacated.

The following assumptions introduced into NHTSA's new calculations deeply distort the results, preventing the requisite "hard look" and introducing data that lack professional and scientific integrity. We note again that the time allowed for public comment has been insufficient for a comprehensive review of the models, input files, and interrelations between and among other modeling assumptions to come to definitive conclusions about the precise impact of these flaws, and therefore we provide only a general description and in some cases quantitative estimates of their effects. We reserve the right to supplement these comments when our analysis is complete.

The scrappage model. NHTSA has introduced a new, untested model that attempts to estimate changes in the rate at which people will scrap (or retire) their existing cars based on fuel economy standards.[39] This model, which NHTSA created itself and which attempts to estimate scrappage in an entirely new way, has not undergone peer review. It leads to bizarre results, including that lower-stringency standards for new vehicles cause the disappearance of between 190 million and 235 million vehicles from the road[40]—along with the fuel they combust, the pollution they emit, and the illness and premature mortality they cause. This hypothetical effect allows NHTSA to artificially and dramatically underestimate the environmental damage that its action alternatives cause.

There are numerous problems with NHTSA's analysis. First, NHTSA claims that its analysis is about how the augural standards will affect turnover, claiming that higher prices will lead to consumers delaying the purchase of new vehicles and holding onto their current cars longer, which NHTSA asserts will lead to less-safe and higher-polluting cars staying on the road. But this is not what NHTSA has actually modeled. The "sales" model and the "scrappage" model are not connected. In other words, instead of developing a model that connected the impact of the standards on sales as well as on consumers' decision to delay the "scrappage" of their current vehicles, NHTSA modeled these two different theories separately, with no interaction. This leads

[39] DEIS, at 2-15.
[40] NPRM, 83 Fed. Reg. at 43,432-33, Table VIII-37, and at 43,434-35, Table VIII-38.

to results that do not align with each other—namely, an *increase* in sales under the Preferred Alternative of roughly 1 million vehicles, but, at the same time, a dramatic *decrease* in the total fleet size. In fact, NHTSA estimates there will be 190 million fewer total vehicles under the CAFE program analysis and 235 million fewer vehicles under the CO_2 program analysis.[41]

Moreover, NHTSA allows the total vehicle miles traveled (VMT) to vary with fleet size, without offering any explanation for the decreased demand for travel. And this "phantom" disappearance of VMT significantly alters the costs and benefits of NHTSA's entire analysis—leading the Preferred Alternative to appear, erroneously, to have lower fuel consumption, fewer emissions, and fewer traffic accidents (and thus fewer fatalities). Conversely, the augural standards are assumed to result in "fewer gallons of fuel saved, greater air pollutant emissions, and more on-road fatalities under more stringent regulatory alternatives."[42] These conclusions are contrary to basic logic, the historic evidence regarding pricing increases and vehicle sales since 2010, the conclusions NHTSA itself came to when it promulgated the 2017-2021 and augural 2022-2025 efficiency standards and in the 2016 TAR, as well as other empirical evidence. In sum, *NHTSA now posits that weaker CAFE standards will lead to a large* decrease *in vehicle miles traveled in the United States.* This counterfactual hypothesis allows NHTSA to considerably underestimate the fuel consumed, the pollution created, and the health adversely affected under its Proposal.

While we continue to attempt fully to understand all impacts of the scrappage model and the "phantom" VMTs on the analysis, one sensitivity case that NHTSA itself conducted offers a degree of insight. By turning off the scrappage model price effect (one element of the scrappage model), the analysis for the CAFE program changes such that fuel consumption increases by 16 billion gallons and the net benefits of the proposed rule decrease from $176.3 billion to $59.2 billion.[43] We also note that the high degree of difficulty of understanding NHTSA's new models and the way they do, or do not, interact with one another is the antithesis of what a DEIS is meant to accomplish—namely, discussions and disclosures that serve to inform the public about the environmental impacts of the proposed action.

NHTSA's "scrappage" model works by forcing the automatic retirement, or "scrappage," of older vehicles at the point when the cost of their operation and maintenance is higher than their assumed market value. The model's inputs and assumptions are seriously flawed.

---

[41] *See* NPRM, 83 Fed. Reg. at 43,390-91, Table VIII-13 (change in sales for the CAFE program); 43,410, Table VIII-23 (change in sales for the CO2 program); 43,432-33, Table VIII-37 (change in fleet size for the CAFE program); and 43,434-35, Table VIII-38 (change in fleet size for the CO2 program).

[42] DEIS, 2-16.

[43] NPRM, 83 Fed. Reg. at 43,362-63, Table VII-94, and 43,367-68, Table VII-97. We also object to the sensitivity analysis NHTSA conducted for the scrappage model. An analysis that turned off the scrappage model completely would have been considerably more useful and informative than just turning off the price effect. Moreover, NHTSA chose to "disable" the price effect by holding all prices constant at MY2016 levels (*see* NPRM, 83 Fed. Reg. at 43,353, Table VII-90), but a more appropriate way to do this analysis would have been to bring all prices up to those projected under the augural standards, which we believe would further show the distorting effect this new, un-peer-reviewed model is having on NHTSA's analysis.

First, NHTSA concedes that it does not have a good data set on either used car prices or on maintenance costs.[44] Instead, it simply "modified" the price of used vehicles by means of a formula that relates them to new vehicle prices, "in effect assuming that changes in new vehicle prices will ultimately be reflected in those for used vehicles."[45] However, as discussed elsewhere in these comments (including with respect to the sales model, below), in the Proposal, NHTSA has dramatically inflated the new vehicle prices under the Augural Standards. Further, as to operating costs, NHTSA's model actually excludes maintenance and repair costs for cars and vans/SUVs because they allegedly do not have a significant effect on scrappage or have an effect opposite of that expected.[46] Excluding this variable without understanding these unexpected results fails the "hard look" test. NHTSA also excludes the variable for pickup trucks even though it is statistically significant and points in the expected direction (increased cost and thus increased scrappage).[47]

In addition, NHTSA's scrappage calculations rest almost entirely on the assumption that average new car prices will increase in lockstep with average projected technology costs. But the agency ignores, among other things: (a) the agency's own observation that the cost of additional technology may not result in increased prices, *see* 83 Fed. Reg. at 43,083 (acknowledging that technology costs could, among other options, be paid for by manufacturers or dealers rather than be passed onto consumers in their entirety); *id*. at 43,077 (stating that projecting "how manufacturers might strategically price these modified vehicles ... requires a strategic pricing model, which each manufacturer has[.]");[48] and (b) the agency's assertion that it believes, under the Preferred Alternative, that automakers are likely to "redeploy some of [the vehicle technologies'] energy-efficiency benefits from increasing fuel economy to improving other features that potential buyers seek," but failing to include the cost of those "redeployed technologies" into their consumer-price projections under the rollback.[49] Including those technology costs could offset or eliminate any price differential between the alternatives. Thus—even if the agency's logic suggesting that increased new car prices would result in a greater number of older vehicles traveling a larger share of miles were not fundamentally flawed—addressing just these two omitted considerations could eliminate the vast majority of impacts calculated by the scrappage model. That the agencies failed to address them demonstrates that the agency has not taken a "hard look."

The sales model. NHTSA also uses a new vehicle sales model, which assumes that more stringent standards will increase the cost of new vehicles and reduce sales. This model suffers fatal flaws including, but not limited to, the following:

[44] PRIA at 1005 and 1011-12.
[45] *Id*. at 1005.
[46] *See* PRIA at 1028, 1030.
[47] PRIA at 1032-33.
[48] Moreover, any suggestion that the agency cannot practically estimate the portion of costs that will not result in price increases on specific models is belied by the agency's own effort to project exactly that type of cost breakdown for EV technologies. *See, e.g.*, 83 Fed. Reg. at 43,255 (discussing agency calculation of both retrievable and irretrievable portions of EV technology costs).
[49] *See* PRIA, at 944.

First, NHTSA vastly overstates projected average price increases attributable to the augural standards. The agency assumes an average price increase of $1,850-2,260 per vehicle compared to no improvements in fuel economy and $1,950 compared to the Preferred Alternative (which assumes the market itself will drive some fuel economy improvement).[50] In contrast, prior analysis by some of the Joint Commenters and others, without NHTSA's new assumptions, show an average cost increase at or below $1,000.[51] And NHTSA uses these over-inflated prices to project how many fewer new vehicles will be purchased under the augural standards.[52] Thus, even ignoring NHTSA's flawed assumption that increased average prices must necessarily result in decreased sales (refuted below), simply using more accurate estimates of consumer price impacts would dramatically decrease the sales impacts calculated by the sales model.

Second, the sales model relies on the same flawed pricing assumptions as the scrappage model, described above. That is, the agencies simply assume without support that average technology costs will equal average price increases for new cars, and the agencies ignore the costs of the technologies they say are "likely" to be "redeployed" under the rollback. They also assume, without evidence or even discussion, that automakers will pass on all of the technology costs to consumers in every case.

Third, the sales model calculates and utilizes an implied elasticity of demand from historical data, and then applies that elasticity to price changes attributable to the standards.[53] But price elasticities measure consumer response to changes in price only if all other attributes of the product remain constant. Here, other aspects of the product will *not* remain constant. At a minimum, vehicle fuel economy levels will change. Given this change in attributes, even the agencies admit that "the magnitude—and possibly even the direction—of [fuel economy

---

[50] *See* NPRM, 83 Fed. Reg. at 43,420, Table VIII-29, & 43,422, Table VIII-31. Among other things, Joint Commenters' preliminary analysis indicates that NHTSA's new Volpe model forces technology selection pathways under which manufacturers install much more costly and less efficient technology rather than available, cheaper, and more efficient technology to meet the standards. While NHTSA asserts that the new Volpe model "makes no *a priori* assumptions regarding inputs such as ... available technologies," DEIS, 2-12, the opposite is the case.

[51] Draft TAR, at 12-81, Table 12.97 (EPA analysis showing combined fleet-wide costs of $894-$1017) & at 13-93, Table 13.23 (NHTSA analysis showing average per-vehicle costs of $938-$1024); see Nic Lutsey et al., *Efficiency Technology and Cost Assessment for U.S. 2025-2030 Light-Duty Vehicles*, International Council on Clean Transportation (Mar. 2017), available at https://www.theicct.org/sites/default/files/publications/US-LDV-tech-potential_ICCT_white-paper_22032017.pdf .

[52] This assumption appears to be contrary to NHTSA's own observation that, historically, sales have moved in tandem with prices. *See* PRIA at 947 ("average new vehicle prices tend to be higher when the total number of new vehicles sold is increasing and lower when the total number of new sales decreases (typically during periods of low economic growth or recessions)."). It is also contrary to the historical evidence of vehicle sales during the years when increasingly stringent fuel efficiency standards have been in effect and both fuel efficiency and new vehicle sales have trended upwards. *See* U.S. Bureau of Economic Analysis, Total Vehicle Sales [TOTALSA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/TOTALSA , Oct. 23, 2018; *see also* Carsaledatabase, US Car Sales Data, http://carsalesbase.com/us-car-sales-data/ (last visited Oct. 23, 2018).

[53] *See* PRIA at 949.

improvements'] effect on sales of new vehicles is difficult to anticipate."[54] This concession undermines their indiscriminate application of a negative implied elasticity to future sales.

Fourth, and relatedly, the agencies wholly ignore consumer willingness to pay (WTP) for fuel economy improvements in the sales model, despite the fact that any positive WTP value would act to offset some portion, and perhaps all, of the agencies' projected sales impacts. The agencies acknowledge this omission, stating that "[d]espite the evidence in the literature ... that consumers value most, if not all, of the fuel economy improvements when purchasing new vehicles, the model described here operates at too high a level of aggregation to capture these preferences."[55] They likewise admit that "[e]stimating the sales response at the level of total new vehicle sales likely fails to address valid concerns about changes to the quality or attributes of new vehicles sold—both over time and in response to price increases resulting from CAFE standards."[56] And they even concede that the economic theory which they assert underpins their rationale for including both the sales and scrappage models in the first place *requires* consideration of WTP. *See* 83 Fed. Reg. at 43,093 ("Gruenspecht recognized that because fuel economy standards affect only new vehicles, any increase in price (*net of the portion of reduced fuel savings valued by consumers*) will ... reduce the number of new vehicles entering the fleet." (Emphasis added)).

The agencies' assertion that incorporating consumer willingness to pay is untenable is erroneous. In fact, the agencies elsewhere assert two separate (and inconsistent) conclusions regarding average WTP. They assert alternately: a) that consumers, on average, value "at least half—and perhaps all—of the savings in future fuel costs they expect from choosing models that offer higher fuel economy";[57] and b) that (based almost entirely on "indicat[ions]" made by automakers) consumers value 30 months of fuel savings, and thus that manufacturers will provide any technology that pays itself back within 30 months even without regulation.[58] Without determining whether either assumption is correct, we observe that incorporating either of these dueling assertions regarding average WTP into the sales model would require that at least the portion of technology costs which is recouped within 30 months must be deducted from the average price increase input into the model, and possibly that up to 100% of the value of future fuel savings over the life of the vehicle must be deducted. Indeed, elsewhere in the rule, the agencies purport to calculate the "effective cost" of technologies, defined as "the difference between their incremental cost and the value of fuel savings to a potential buyer over the first 30 months of ownership."[59] Yet the sales model nevertheless incorporates only the projected average price increase based entirely on adding all of the new technology costs, not a projected "effective" price increase adjusted to account for WTP.[60]

And fifth, the sales model's reliance solely on average price increases undermines any claim that it accurately projects real-world sales impacts. While the agencies assert that "it is necessary to

[54] PRIA at 951.
[55] 83 Fed. Reg. at 43,075.
[56] *Id*.
[57] *Id*. at 43,073.
[58] *Id*. at 43,179.
[59] *See* 83 Fed. Reg. at 43,174 (footnote omitted).
[60] *See* PRIA at 953 (the sales model "estimates the response of total new vehicle sales to changes in the average new vehicle price").

quantify important measures, like sales price or fuel economy, by averages," they concede that, "[i]n an aggregate sense, the average is not comparable to the decision an individual consumer faces."[61] This concession reinforces the fact that, in a segmented market, automakers may mitigate impacts from average price increases by directing those price increases to consumers with the highest willingness to pay for fuel economy (such as by producing highly efficient cars for sale to those consumers), or to consumers with high WTP for other vehicles, in effect cross-subsidizing the cost of fuel economy improvements with price changes for other, less-efficient cars. *See* 83 Fed. Reg. at 43,222 ("Manufacturers have long cross-subsidized vehicle models in their lineups in order to recoup costs in cases where they do not believe they can pass the full costs of development and production forward as price increases for the vehicle model in question.").[62] With either strategy (or a combination of the two), any real-world sales impacts could be mitigated or eliminated. Yet the agencies wholly ignore these opportunities for automakers to distribute any average price increase selectively across consumers to protect sales, and instead simply (and erroneously) apply an implied elasticity to that average projected price increase. Utilizing an average in this way wholly fails to reflect on-the-ground reality. And the agency cannot shirk its responsibility to take a "hard look" at on-the-ground impacts simply by asserting that doing so would be difficult.[63]

In sum, the agencies assume away all of the complex factors impacting real-world sales—even while acknowledging that those factors are "valid." The agencies' sales model and the assumptions underlying it are wholly arbitrary and capricious, and do not satisfy the agency's obligation to take a "hard look" at real-world impacts.

The rebound effect. NHTSA has also introduced new modeling assumptions concerning the "rebound effect" (the general proposition that improved fuel economy can lead to additional miles traveled and pollution emitted because the cost of driving additional miles has become cheaper), including revising the estimate up from 10% (as used in the 2012 FEIS and the TAR) to 20%.[64] Using this revised figure, NHTSA posits that a regulatory decrease of the fleet's fuel efficiency (and corresponding increase in the cost of driving) under all of its alternatives will lead to a reduction of total vehicle miles traveled, with corresponding social benefits. The newly missing vehicle miles traveled in the rollback scenario also allow NHTSA significantly to under-

[61] 83 Fed. Reg. at 43,075.

[62] The agencies appear to lament that purchasers of less-efficient vehicles might pay the cost of efficiency upgrades for other vehicles. But allocating external social costs to the users causing more of them is consistent with the agencies' own descriptions of their regulatory missions. *See*, e.g., EPA, *Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*, EPA-452/R-18-006 (Aug. 2018) at 1-3 ("This regulation … will work towards addressing this market failure by causing affected [entities] to begin to internalize the negative externality associated with CO2 emissions.").

[63] *See* 83 Fed. Reg. at 43,075 (lamenting that "attempts to address such concerns would require significant additional data, new statistical approaches, and structural changes to the CAFE model").

[64] Prior to utilizing a 10% rebound effect rate, NHTSA used a rate of 15%. *See* Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011, 74 Fed. Reg. 14,196, 14,326 (Mar. 30, 2009). NHTSA fails to mention this prior position, instead erroneously suggesting the agencies jumped from 20% down to 10% in the 2012 rulemaking. *See* 83 Fed. Reg. at 43,100.

report the amount of criteria pollutants, toxics, greenhouse gases, and ill health effects that its proposed action and alternatives will cause.

NHTSA's prediction that VMTs will decrease is wrong for many reasons, including the arbitrary selection of a 20% rebound rate. NHTSA selected a 10% rate in both the 2012 rulemaking and the 2016 TAR, and its explanations for the change in rates lacks merit. Studies indicate that the rebound effect *diminishes* as fuel economy improves, as has happened for the past several decades.[65] The agencies attempt to skirt this fact primarily by relying on erroneous readings of Hymel, Small, and Van Dender (2010) and Hymel and Small (2015).[66] And they omit or ignore other studies and meta-analyses that confirm the existence of the income effect.[67] These obfuscations fail to meet the "hard look" requirement of NEPA.

The agencies also suggest (without citation or authority) that the rebound effect for individual vehicles increases with the number of vehicles a household owns, and that high income households tend to own more cars.[68] The agencies then argue that "[b]ecause vehicle ownership is strongly associated with household income, this common finding" undermines the income effect.[69] This suggestion is erroneous. Although we cannot fully respond to the agencies' contention given the lack of citation to underlying authority, we observe that in general, findings that households are likely to drive their new, more fuel efficient car more than their old, less fuel efficient cars do not suggest that the households will drive more in total, but that the household simply shifts driving to the newer, more efficient car. This type of rebound is not *additional* driving, but *replacement* driving, which therefore would not increase total VMT, and which would provide a social benefit by reducing total household fuel consumption, costs, and carbon emissions. Such findings do not in any way undermine the income effect, which concerns total VMT, not substitute VMT.

Moreover, the agencies do not discriminate among the recent rebound studies they consider but instead appear to afford each study equal weight.[70] But effectively averaging the studies' results is inappropriate and misleading. As they did in the 2012 rulemaking, the Draft TAR, and other prior rulemakings,[71] the agencies must analyze the applicability of the substance of each study in this specific rulemaking context.

---

[65] *See, e.g.*, Kenneth A. Small & Kurt Van Dender, *Fuel Efficiency and Motor Vehicle Travel: The Declining Rebound Effect*, 28 Energy J. 25 (2007).
[66] *See* 83 Fed. Reg. at 43,105.
[67] *See, e.g.*, Alexandros Dimitropoulos et al., *The Rebound Effect in Road Transport: A Meta-Analysis of Empirical Studies*, 75 Energy Econ. 163, 171 (2018); 83 Fed. Reg. at 43,099-43,102 (failing to mention or discuss Dimitropoulous et al.).
[68] 83 Fed. Reg. at 43,105.
[69] *Id*.
[70] *Id.*
[71] *See, e.g.*, 74 Fed. Reg. at 14,325-26 ("In selecting a value for the rebound effect ... , NHTSA attached greater significance to studies that allow the rebound effect to vary in response to changes in the factors that affect its magnitude. The agency's view is that updating their estimates to reflect current economic conditions provides a more reliable indication of its likely magnitude over the lifetimes of vehicles that will be affected by those standards.")

The agencies also ignore findings that the fuel *economy* rebound effect is smaller than the fuel *price* rebound effect. For example, in the Proposal the agencies make a sole reference to Hymel's and Greene's findings in this regard.[72] But, in fact, the agencies nowhere discuss those findings.[73] And the agencies, without reasoned explanation, discount other literature suggesting that consumer driving habits do not respond significantly to changes in fuel economy.[74]

Further, the agencies acknowledge (and qualitatively discuss) several relevant inputs in calculating the actual cost per mile ("CPM") of driving, such as per-mile depreciation of the costs of achieving efficiency improvements.[75] But, the agencies expressly decide to ignore those relevant costs in their projections.[76] The agencies' offered justification for failing to consider these additional costs in CPM is that empirical estimates of the rebound effect focus only on fuel costs per mile, and therefore "incorporating depreciation costs [etc.] would not change the estimates of the reduction in vehicle use."[77] But this observation amounts to an admission that the literature upon which the agencies rely generally does not study the relevant rebound effect. Those studies almost entirely estimate consumer responses to fuel price changes, and not to fuel economy changes. The reason the studies do not consider consumer costs, such as per-mile depreciation costs, is that, unlike fuel efficiency changes, fuel price changes are cost-free, and per-mile depreciation costs are irrelevant. Therefore, the studies relied upon in fact undermine, rather than support, the agencies' decision to disregard relevant costs associated with fuel economy.

For all of the foregoing reasons (among others), the agency's use of a 20% value for the rebound effect is arbitrary, and constitutes a failure to take a "hard look" at the impacts of the Proposal.

The faulty safety assumptions. NHTSA estimates that the No Action Alternative will lead to 12,700 more fatalities than the Preferred Alternative under the CAFE program, and 15,600 more fatalities under the CO_2 program.[78] The overwhelming majority of these projected fatalities, however, are not attributable to the stringency of the standards themselves. For the CAFE program, 6,340 of those projected fatalities are attributable to the rebound effect,[79] which NHTSA itself acknowledges should not be considered attributable to the CAFE standards.[80] And for the CO_2 program, the number similarly is attributable to the rebound effect--but not the stringency of the standards—is 7,300.[81] Another 6,180 of the projected CAFE program fatalities

[72] 83 Fed. Reg. at 43,102 (stating that the Hymel and Greene findings are discussed "above").
[73] *See id.* at 43,099-102 (failing to discuss Hymel and Greene findings).
[74] *See* PRIA at 996 (minimizing this finding in work by Stapleton); 83 Fed. Reg. at 43,099-105 (failing to discuss Stapleton's work at all).
[75] *See* PRIA at 978-80.
[76] *Id.* PRIA at 979.
[77] *Id*. at 976.
[78] *See* PRIA Tables 11-27 and 11-31, respectively.
[79] PRIA Table 11-27.
[80] *See* PRIA at 1402 ("[A]lthough a safety impact from the rebound effect is calculated, these impacts are considered to be freely chosen rather than imposed by CAFE and imply personal benefits at least equal to the sum of their added costs and safety consequences.")
[81] PRIA Table 11-31.

and 7,880 of the projected CO_2 program fatalities are from "sales impacts,"[82] of which the scrappage model is the overwhelming driver. Again, the scrappage model is a brand new model that has not been peer reviewed and that creates massive discrepancies in fleet size that do not comport with reality or economic theory. This fleet size differential then drives significant changes in total vehicle miles traveled, even though, again, there is no basis for any change in travel demand in either reality or economic theory. It is those phantom extra VMTs that create the additional fatalities in NHTSA's model. And even if one accepted these results, a consumer's decision to drive more should not be attributed to the stringency of the standards, for the same reason that NHTSA does not attribute the additional miles driven because of the rebound effect to the standards. In the end, the only projected fatalities that could even possibly be attributed to the standards' stringency are those that might occur due to mass reduction of vehicles (which improves fuel economy), which NHTSA projects to be 160 for the CAFE program and 468 for the CO_2 program.[83] But even here, NHTSA is on incredibly thin ice. Among other issues undermining the mass reduction analysis, NHTSA acknowledges that the fatality coefficients underlying the analysis are not statistically significant at the 95% confidence level, and only two of the coefficients (out of five) are statistically significant at the 85% confidence level.[84] Thus, even these fatality increases are dubious at best.

We also note that the phantom fatalities NHTSA attributes to higher fuel efficiency standards stand in stark contrast to the known fatalities and adverse health effects the Proposal will surely cause as weakened standards increase GHGs and criteria pollutants.

Effect of faulty modeling on air quality. At a minimum, NHTSA's new assumptions are inconsistent with those contained in the Final EIS it prepared in 2012 for the MY2017-2025 standards. In the 2012 Final EIS, NHTSA analyzed the criteria pollution effects of the MY2022-2025 standards (including both upstream and downstream emissions), without a scrappage model, and found that emissions of some conventional and toxic air pollutants (CO and PM2.5) would increase under the augural standards due to higher VMT, while emissions from other pollutants (VOC, SO2, and NOx) would decrease due to more stringent regulation of EPA tailpipe emissions and reductions from fuel production. The 2012 EIS concluded that, even with these constraints, overall the augural standards would result in decreases of VOC, PM2.5, SO2, and NOx over time, primarily due to decreases in fuel production and distribution.[85] This result is unsurprising, given the reductions in fuel consumption expected from the current standards.

On the other hand, NHTSA's DEIS, which *reverses* the fuel savings of the augural standards by freezing the MY2020 standard, concludes that under the Preferred Alternative, emissions of some pollutants (CO and NOx) actually decrease in 2025 and 2035 as compared to the much more fuel efficient No Action Alternative. The analysis also shows that VOCs decrease in 2025 even though the Proposal would entail no fuel economy improvements. With these notable exceptions, NHTSA admits that (except for CO emissions), all conventional and toxic air pollutants analyzed (NOx, PM2.5, SO2, and VOCs) would increase by 2050 under the Preferred

[82] PRIA Tables 11-27 and 11-31, respectively
[83] *Id.*
[84] *See* PRIA at 1347-48.
[85] 2012 Final EIS, at 4-32.

Alternative.[86] Specifically for the various action alternatives, NHTSA's air quality analysis identifies the following impacts below on criteria pollutants, including CO, NOx, PM2.5, SO2, and VOCs:

- For CO, NOx (in 2025 and 2035), and VOCs (in 2025), emissions would generally decrease across action alternatives (compared to the No Action Alternative), with the largest decreases occurring under Alternative 1 and emissions decreases getting smaller from Alternatives 1 through Alternative 8. Exceptions to this trend are for CO in 2035 and 2050, which shows the smallest emissions decrease in Alternative 7, and for NOx in 2035, which shows a small increase under Alternative 8.
- For NOx (in 2050), PM2.5, SO2, and VOCs (in 2035 and 2050), emissions would generally increase across action alternatives (compared to the No Action Alternative), with the largest increases occurring under Alternative 1 and emissions increases getting smaller from Alternative 1 through Alternative 7. Exceptions to this trend are for PM2.5 and SO2 in 2025, which show the smallest emissions increase under Alternative 8.
- Emissions increases would be largest under Alternative 1 for all criteria pollutants (except CO). By 2050, these increases would range from less than 1 percent for PM2.5 to 9 percent for SO2. Emissions of CO would decrease across all alternatives and analysis years; the decreases would be greatest under Alternative 1 and the maximum decrease would be 5 percent.
- Under Alternative 1, emissions of all criteria pollutants in 2050 would increase except for CO, compared to emissions under the No Action Alternative. By 2050, these increases would range from 2.1 percent for NOx to 9.1 percent for SO2. By 2050, CO emissions would decrease by 3.4 percent.

This is a logical implication of freezing the standards but, as we explain below, corrected modeling analysis shows that NHTSA greatly underestimates those increases.

NHTSA has also failed to consider the results of the updated air quality assessment performed for the Draft TAR, prepared jointly with EPA and California's Air Resources Board in 2016 as part of EPA's mid-term evaluation of the standards. In the TAR, EPA's OMEGA model assumed that downstream emissions are affected by the rebound effect (at a more reasonable and commonly accepted level, as explained above).[87] Even with these constraints (which results in CO increases due to driving behavior), EPA's modeling also shows that the MY2022-2025 standards will decrease VOC, NOx, PM2.5, and SOx emissions over time.[88]

In sum, NHTSA must analyze and present the environmental, health, and other relevant impacts of its action alternatives without the new, uncorroborated and inadequately explained modeling assumptions addressed here, and instead use the same assumptions it used in the 2012 DEIS and the 2016 TAR to enable the reader to meaningfully compare the current Proposal with the No Action Alternative. To do otherwise falls far short of the "hard look" NEPA requires and prevents an informed understanding by readers and decision makers.

[86] DEIS, at 4-29 - 4-30.
[87] Draft TAR, at Chapter 10.
[88] Draft TAR, at 12-59.

Modeling by the Environmental Defense Fund (EDF) performed to analyze NHTSA's Preferred Alternative, submitted to this docket, corrected these (and other) misleading assumptions, in order to understand the environmental impact of NHTSA's proposal. EDF made the following adjustments to the Volpe model: it (i) adjusted the rebound effect to 10 percent, the rate that was used in prior fuel economy/greenhouse gas standards and is more commonly accepted (though it may be too high); (ii) turned off the scrappage model to avoid its distorted projections of VMT for used vehicles relative to changes in new vehicle sales; (iii) corrected NHTSA's faulty over-compliance assumptions which project that automakers would exceed the standards even without regulations and thereby obscure the impact of the rollback; and (iv) revised NHTSA's upstream emissions estimates to remove the agency's assumption that any additional fuel consumption from the proposed action and alternatives would be supplied from overseas sources.[89]

The results of EDF's corrected modeling exercise show that NHTSA greatly underestimates the adverse effects from light-duty vehicle emissions of certain criteria pollutants—nitrogen oxides (NOx), particulate matter (PM), sulfur oxides (SOx), and volatile organic compounds (VOCs)—in 2025, 2035, and 2050:

- With respect to NOx, NHTSA incorrectly states that NOx emissions will decrease by 5,112 tons/year in 2025 and 682 tons/year in 2035, and that these emissions will increase by 7,911 tons/year in 2050. In contrast, EDF's analysis found that light-duty vehicle NOx emissions will increase in all scenarios analyzed (and by a much greater extent)--23,225 tons/year in 2025, 53,181 tons/year in 2035, and 63,902 tons in 2050 compared to the No Action Alternative.
- With respect to SOx, emissions will continue to increase at much higher levels than NHTSA estimates. EDF's analysis shows that the Preferred Alternative will result in 13,671 tons/year in 2025 (compared to NHTSA's estimated 3,898 tons/year), 30,238 1,636 tons/year in 2035 (compared to NHTSA's estimated 8,818 tons/year), and 35,946/year in 2050 (compared to NHTSA's estimated 10,863 tons/year).
- With respect to PM2.5, the actual increases are up to thirteen times as large as NHTSA's estimates (depending on the scenario analyzed). NHTSA states that PM2.5 emissions will increase by 126 tons/year in 2025, 182 tons/year in 2035, and 596 tons/year in 2050. In contrast, EDF's analysis found that emissions will increase to 1,652 tons/year in 2025, 3,693tons/year in 2035, and 4,401 tons in 2050.
- Finally, with respect to VOCs, NHTSA incorrectly states that VOCs emissions will decrease by 3,767 tons/year in 2025, and that they will increase to 9,664 tons/year in 2035 and 23,442 tons/year in 2050 if the agency follows its Preferred Alternative. In contrast, EDF's analysis found that light-duty vehicle NOx emissions will increase in all scenarios analyzed--22,050/year in 2025, 51,949 tons/year in 2035, and 63,181 tons in 2050 compared to the No Action Alternative.

[89] Comments of Environmental Defense Fund on National Highway Traffic Safety Administration Draft Environmental Impact Statement for the Safer Affordable Fuel-Efficient (SAFE) Vehicle Rule for Model Year 2021-2026 Passenger Cars and Light Trucks, submitted to Docket No. NHTSA-2017-0069.

As also explained more fully in comments submitted in this docket by the state of California et al.,[90] when realistic and scientifically-defensible air impacts modeling and proper assumptions are used, it is likely that none of the nonattainment or maintenance areas in the U.S. would in fact see any of the emissions decreases described immediately above from the Preferred Alternative or any other alternatives relative to the No Action Alternative. That conclusion, emerged from analysis by the California Air Resources Board ("CARB"), which attempted to perform side-by-side comparisons between the DEIS' California-related emissions calculations and similar calculations using EMFAC2014, a computer model that estimates emission rates for hydrocarbons, CO, NOX, PM10, PM2.5, lead, CO2, and SOX for on-road mobile sources for calendar years 2000 to 2050 operating in California.[91] When approving a 2014 update to the state's EMFAC model, the EPA found that the model was the most current, accurate and applicable model for the state.[92]

As the California DEIS Comment Letter explains, the side-by-side comparisons were an extremely difficult undertaking because the DEIS failed to describe many of the necessary assumptions and bounds the agency used in its emissions calculations, and failed to explain how NHTSA arrived at one of its most inexplicable results: that, in certain years under the proposed action, criteria pollutant emissions were estimated to decrease in areas where refinery operations would likely increase operations, and thus increase production-related emissions, to meet increased fuel demand.[93] California's DEIS Comment Letter offers the San Francisco Bay Area as an example; the DEIS illogically concludes that this nonattainment area would see some criteria emissions benefits (*i.e.*, reductions) despite the fact that, as California et al. points out, the Bay Area is one of two primary fuels-refining regions in California, with five refineries in that air basin alone.[94]

The DEIS's illogical conclusion extends to other nonattainment areas which have refineries within their boundaries across the nation. See the table below for additional examples. As discussed in Section XI below, many of these refineries are located in communities in the U.S. with the highest percentiles of people of color and low-income populations, who already are adversely affected by the refineries' operations.

[90] California et al., Comments on the Draft Environmental Impact Statement for the "SAFE" Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks (to be submitted Oct. 26, 2018) ("California DEIS Comment Letter"), at 18.
[91] *Id*. at 17-18.
[92] Official Release of EMFAC2014 Motor Vehicle Emission Factor Model for Use in the State of California, 80 Fed. Reg. 77,337, 77338 (Dec. 14, 2014).
[93] California DEIS Comment Letter, at 18.
[94] *Id*. at 18-19.

Nonattainment Areas with Refineries and Criteria Pollutant Emission "Benefits"

Nonattainment Area Name	***Refinery Name(s)[a] (County Name)***	***Criteria Pollutant Emissions "Benefits" by Year***
Detroit, MI	Marathon (Wayne)	CO in 2025 (DEIS, at A-220) CO in 2035 (DEIS, at A-237) CO in 2050 (DEIS, at A-254)
El Paso County, TX	El Paso Refinery (El Paso)	VOC in 2025 (DEIS, at A-170) CO in 2025 (DEIS, at A-221) CO in 2035 (DEIS, at A-238) CO in 2050 (DEIS, at A-255)
Houston-Galveston-Brazoria, TX	ExxonMobil[a] (Harris) Lyondell Basel (Harris) Marathon[a] (Galveston) Pasadena (Harris) Shell Oil Deer Park (Harris) Valero (Harris)	CO in 2025 (DEIS, at A-222) CO in 2035 (DEIS, at A-239) CO in 2050 (DEIS, at A-256)
Los Angeles, CA	Andeavor (Los Angeles) BP (Los Angeles) ConocoPhillips (Los Angeles) Valero (Los Angeles) Valero II (Los Angeles)	PM2.5 in 2025 (DEIS, at A-9) PM2.5 in 2035 (DEIS, at A-28) NOx in 2025 (DEIS, at A-119) NOx in 2035 (DEIS, at A-138) VOC in 2025 (DEIS, at A-174) VOC in 2035 (DEIS, at A-191) CO in 2025 (DEIS, at A-225) CO in 2035 (DEIS, at A-242) CO in 2050 (DEIS, at A-259)
Los Angeles-South Coast Air Basin, CA	Andeavor (Los Angeles) BP (Los Angeles) ConocoPhillips (Los Angeles) Valero (Los Angeles) Valero II (Los Angeles)	PM2.5 in 2025 (DEIS, at A-10) PM2.5 in 2035 (DEIS, at A-28) NOx in 2025 (DEIS, at A-119 &-120) NOx in 2035 (DEIS, at A-138) VOC in 2025 (DEIS, at A-174) VOC in 2035 (DEIS, at A-191) CO in 2025 (DEIS, at A-225) CO in 2035 (DEIS, at A-242) CO in 2050 (DEIS, at A-259)

New York-N. New Jersey-Long Island, NY-NJ-CT	Bayway (Union County, NJ)	PM2.5 in 2025 (DEIS, at A-12) PM2.5 in 2035 (DEIS, at A-30) PM2.5 in 2050 (DEIS, at A-48) NOx in 2025 (DEIS, at A-122) NOx in 2035 (DEIS, at A-140) NOx in 2050 (DEIS, at A-158) VOC in 2025 (DEIS, at A-176) CO in 2025 (DEIS, at A-227) CO in 2035 (DEIS, at A-244) CO in 2050 (DEIS, at A-261)

a: On list of Top 10 Refineries by Operable Capacity as of Jan. 1, 2018 according to the U.S. EIA (see https://www.eia.gov/energyexplained/index.php?page=oil_refining#tab4).

Quantitative Estimates of Adverse Health Effects of Conventional Air Pollutants. One of the most notable departures from the more comprehensive analysis of air quality impacts presented in the 2012 Final EIS appears in the DEIS's discussion of adverse health effects of conventional and toxic air pollutants. For example, in the 2012 Final EIS, NHTSA both quantified and monetized the increase in health benefits from reductions in adverse health effects, such as mortality, chronic bronchitis, emergency room visits for asthma, and work-loss days, generally resulting from all of the action alternatives.[95] For instance, for criteria pollutants, the 2012 Final EIS included a lengthy discussion of monetized health benefits,[96] including descriptions of monetized health impacts for each alternative[97] and crucial data tables that allowed decision makers and the public to compare monetized health benefits between alternatives at a glance.[98] Neither the DEIS nor the accompanying PRIA include similarly robust discussions.

Additionally, the 2012 Final EIS acknowledged that the information necessary to monetize all potential health and environmental benefits was not available, and thus the 2012 FEIS "likely underestimated the total benefits of reducing criteria pollutants."[99] No such disclosure appears in the DEIS.

The DEIS also departs from the 2012 Final EIS by including, but failing to explain, a change in the air quality impacts analysis periods. To evaluate impacts to air quality, NHTSA previously selected calendar years that were meaningful in light of its action alternatives' likely effects: 2021 (the endpoint of the regulations then being finalized), 2025 (the endpoint of the augural standards), 2040 (a midterm forecast year with "a large proportion" of passenger car and light truck VMTs accounted for by vehicles meeting Proposed Action economy standards), and 2060 (almost all passenger cars and light trucks in operation meeting Proposed Action fuel economy standards, and impacts of standards determined primarily by VMT growth).[100] In the DEIS, however, NHTSA selected only three calendar years – 2025 (an early forecast year with about

[95] 2012 Final EIS S-29.
[96] 2012 Final EIS, Section 4.2.1.1.3, Health Effects and Monetized Health Benefits Overview.
[97] 2012 Final EIS at 4-92 to 4-96.
[98] *See, e.g.*, 2012 Final EIS at Tables 2.6.1-1-A to C, 4.2.1-8-A1 to -B2, 4.2.2-8-C1 to -C2.
[99] 2012 Final EIS 4-16.
[100] 2012 Final EIS 4-15 - 4-16.

one-fourth passenger car and light truck VMTs accounted for by vehicles meeting Proposed Action economy standards), 2035 (a midterm forecast year with about three-fourths passenger car and light truck VMTs accounted for by vehicles meeting Proposed Action economy standards), and 2050 (almost all passenger cars and light trucks in operation meeting Proposed Action fuel economy standards, and changes in year-over-year impacts determined primarily by VMT growth) – and shortened the time span covered by the analysis by a decade.[101] NHTSA offers no explanation for either change.

Air Quality Cumulative Impacts Analysis. The DEIS has an exceptionally cursory and superficial analysis of the cumulative impacts to air quality from the proposed action and other alternatives – especially when compared to the same analysis in the 2012 Final EIS. Notably, the air quality cumulative impacts analysis in the DEIS spans less than three pages[102] while the same analysis in the 2012 Final EIS covers more than thirty pages,[103] featuring a robust and informative evaluation of cumulative impacts to air quality, including various comparative analyses of criteria and toxic air pollutant emissions by alternatives, clear tables and figures,[104] and a discussion of the health effects and monetized health benefits of each alternative,[105] followed by individual analyses of emissions for the proposed action and other alternatives.[106] For example, in its air quality cumulative impact analysis, the 2012 Final EIS includes tables showing decreases in negative health outcomes, including mortality, chronic bronchitis, emergency room visits for asthma, and work-loss days, as well as increases in the monetized values of the same by alternative and year.[107] NHTSA's current analysis certainly fails NEPA's "hard look" requirement, by comparison with the 2012 Final EIS or otherwise.

ii. Other failures to take a hard look at direct and indirect effects

Criteria pollutants. Additional criteria pollutants emitted by less fuel-efficient vehicles will trigger or worsen NAAQS violations, as demonstrated by data in the DEIS showing numerous areas in the country that are already in nonattainment for ozone and $PM_{2.5}$.[108] (*See also* the General Conformity discussion below.) It is remarkable for federal agencies to advocate rolling back regulations even though their admitted effect—which the agencies refuse to mitigate, see below—is to exacerbate the pollution exceedances in nonattainment areas. It is equally noteworthy that all nine areas NHTSA identifies as suffering from "serious" or "extreme" nonattainment conditions for ozone and $PM_{2.5}$ are located in California,[109] even though the agencies unlawfully propose to revoke (or declare preempted) the state's Clean Air Act waiver for GHG emissions and the state's ZEV mandate that currently allows California to set more stringent vehicle pollution standards to combat these deadly conditions.

---

[101] DEIS 4-18.
[102] DEIS 8-15 - 8-17.
[103] 2012 Final EIS 4-96 - 4-130.
[104] 2012 Final EIS 4-96 - 4-105.
[105] 2012 Final EIS 4-121 - 4-130.
[106] 2012 Final EIS 4-126 - 4-130.
[107] 2012 Final EIS 4-122 - 4-125.
[108] DEIS, at 4-20 - 4-23.
[109] *Id.*

In an effort to gloss over the impact on the health of those forced to breathe the additional criteria pollutants emitted under NHTSA's proposed action, the agency states that it "assumed that little to no extraction of crude oil occurs in nonattainment areas."[110] This is untrue, as considerable (and not "little to no") amounts of oil extraction occurs both in Kern and Los Angeles County nonattainment areas.[111] The same is true of NHTSA's assertion that "probably" only a "very small proportion" of criteria pollution emitted in the transportation of crude oil occurs in nonattainment areas.[112] To the contrary, the oil extracted in Kern and Los Angeles County must inevitably travel through these nonattainment areas to reach refineries. NHTSA's nonchalant dismissal of exacerbated non-attainment area pollution caused by its Proposal certainly fails the "hard look" test.

Health Impacts. NHTSA gives equally short shrift to the health impacts of its alternatives, providing summaries of criteria and toxic pollutant increases on health only through 2035,[113] and quantifying only premature deaths and work days lost. While it concludes that in 2035, the Preferred Alternative will cause between 86 and 194 more premature deaths and 10,982 extra work days lost,[114] the faulty scrappage model and flawed rebound effect assumptions, among other things, seriously underestimate the total additional amount of criteria pollutants and toxics emitted, as described above. The true health impacts would clearly be far worse than NHTSA describes.

Greenhouse gas emissions. No dispute remains that meaningful consideration of the environmental damage caused by greenhouse gas emissions is required as part of any NEPA review of direct, indirect and cumulative impacts of agency action. *See, e.g., Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) ("The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."); *Sierra Club v. FERC*, 867 F.3d 1357, 1371 (D.C. Cir. 2017) (NEPA review must consider the direct and indirect effects of greenhouse gas emissions of the alternatives). In 2016, the Department of Transportation published for comment DOT Order 5610.1D, setting forth procedures to address climate change when conducting a NEPA analysis of its proposed actions. DOT Order 5610.1D(2)(a) (establishing procedures for consideration of environmental impacts as part of the decision-making process for Department of Transportation actions) and (c)(6) (stating that DOT will strive to create an environmental review process that considers climate change). The Council on Environmental Quality issued a Final Climate Guidance, 81 Fed. Reg. 51,866 (Aug. 5, 2016),[115] which states the following:

---

[110] DEIS, at 4-23.

[111] California Council on Science and Technology and Lawrence Berkeley National Labs, *An Independent Scientific Assessment of Well Stimulation in California*, Volume 2, Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations (July 2015), at 237-239 ("The two air basins (San Joaquin Valley and South Coast) most strongly impacted by oil and gas production also coincide with the worst air quality in California. Both air basins are currently out of compliance with both national ozone and PM2.5 standards.").

[112] DEIS, at 4-24.

[113] DEIS, at 2-27.

[114] *Id*.

[115] Although this guidance was withdrawn on April 5, 2017, Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of GHG Emissions and the Effects of Climate Change in

> If the direct and indirect GHG emissions can be quantified based on available information, including reasonable projections and assumptions, agencies should consider and disclose the reasonably foreseeable direct and indirect emissions when analyzing the direct and indirect effects of the proposed action. Agencies should disclose the information and any assumptions used in the analysis and explain any uncertainties. To compare a project's estimated direct and indirect emissions with GHG emissions from the no-action alternative, agencies should draw on existing, timely, objective, and authoritative analyses, such as those by the Energy Information Administration, the Federal Energy Management Program, or Office of Fossil Energy of the Department of Energy. In the absence of such analyses, agencies should use other available information.[116]

NHTSA's disclosure and discussion of the greenhouse gas effects of its Proposal and its alternatives fails NEPA's "hard look" test for numerous reasons.

1. Omission of comparative data.

The relevant NEPA regulations require NHTSA to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14. But here, the absence of direct comparisons over time in the DEIS itself masks the crucial differences between alternatives. The omission of this data is glaring because it departs from the presentation and comprehensive analysis in the 2012 Final EIS. NHTSA must show these comparisons and disclose the results in the DEIS under both (1) the flawed modeling assumptions it uses throughout the DEIS should it chose to retain them despite these comments, and (2) under the same assumptions it used in the 2012 DEIS and the 2016 TAR to enable the reader meaningfully to compare the current Proposal with the No Action Alternative. NEPA commands agencies to examine "both short- and long-term effects." 40 C.F.R. § 1508.27(a). Here, lack of readily understandable comparative data over time in the DEIS prevents an informed decision by the general public and the decision makers.

Notably, missing from the DEIS itself are crucial data tables, each of which was present in the 2012 Final EIS accompanying the MY2017-2025 standards:

- Tables quantifying total CO_2 emissions differences (in $MMTCO_2$) from 2020-2100 by alternative (*see e.g.*, 2012 Final EIS, 5-41 – 5-43) and in meaningful time increments;

NEPA Reviews, 82 Fed. Reg. 16,576 (Apr. 5, 2017), it was withdrawn for political, not legal or technical reasons and has not been replaced; at a minimum, it continues to have persuasive value.

[116] CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (Aug. 1, 2016), at 16 (footnotes omitted).

- Tables showing emission increases compared to the No Action Alternative for each action alternative (*see e.g.*, 2012 Final EIS, 5-41 – 5-44) in meaningful time increments;
- Tables showing the percentage emission increases for each alternative compared to the No Action Alternative (*see e.g.*, 2012 Final EIS, 5-41 – 5-43) in meaningful time increments.

The DEIS itself also does not spell out the amount of extra greenhouse gases added per alternative just during the years at issue, 2021 through 2026, as total amounts are stated in the DEIS only as of 2100. The only comparison of emission increases from 2021 through 2026 is given in terms of the approximate *annual* emissions of extra vehicles on the road,[117] leaving the reader in the dark as to what the extra near-term greenhouse gas emissions will be.

NHTSA must, at a minimum, present in the DEIS the outcomes for its greenhouse gas analysis for each alternative at 2035 (the end of modeling for health impacts), 2050 (the end point of its analysis for criteria pollutants, MATS, and additional fuel combustion), the time periods it selected in the 2012 DEIS so readers can make meaningful comparisons, and 2100 (the only date for which NHTSA currently provides greenhouse gas emissions data). In addition, the DEIS's disclosure that by 2050, 206 billion additional gallons will have been combusted under the Preferred Alternative[118] is insufficiently meaningful in light of the fact that greenhouse gas emission calculations have been performed through 2100, and that NHTSA has the tools to calculate the additional gallons burned through 2100 as well and the duty to share this information with the public. A "hard look" at the direct and indirect effects of the proposed action and alternatives requires the reader to be informed of the total amount of combusted fuel that causes the greenhouse gas emissions described.

NHTSA has tucked some of this data into the appendix. However, crucial information necessary for the reader to comprehend the impact of the Proposal should be presented in the DEIS document itself. As the Ninth Circuit noted in *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214 (9th Cir. 1998): "We do not find adequate support for the Forest Service's decision in its argument that the 3,000 page administrative record contains supporting data. The EA contains virtually no references to any material in support of or in opposition to its conclusions. That is where the Forest Service's defense of its position must be found." *See also Sierra Club v. Bosworth*, 199 F. Supp. 2d 971, 980 (N.D. Cal. 2002) ("It is not an adequate alternative ... to merely include scientific information in the administrative record. NEPA requires that the EIS itself 'make explicit reference ... to the scientific and other sources relied upon for conclusions in the statement'"). NHTSA understood this when it presented the relevant information in clearly understandable, side-by side tables in the 2012 Final EIS; it must do so now as well.

[117] DEIS, at S-15, 5-29.
[118] DEIS, at S-6.

2. Failure to disclose benefits.

The DEIS' discussion of the alternatives' climate change effects also does not analyze or disclose the benefits that come from reducing these emissions, let alone compare them by alternative and against the No Action Alternative. In particular, the DEIS only cursorily discusses its social cost of carbon ("SCC") calculations, referring the reader to the PRIA instead.[119] Given how crucial this information is, the DEIS itself must disclose them. *See Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d at 1214.

Omitting from the DEIS a comparison of the environmental and health benefits of the No Action Alternative and the other alternatives from the DEIS is far less than what NEPA requires: the agencies proposing major actions must, "to the fullest extent possible," prepare a detailed statement on environmental impacts of the proposed action and alternatives. 42 U.S.C. § 4332(2). Omitting meaningful descriptions of the benefits derived from reducing carbon pollution plainly fails to describe the alternatives to the fullest extent possible.

3. Abdication of duty to make independent judgment.

Notably, the DEIS states that NHTSA did not "draw[] its own conclusions relating to climate change," but instead relied on sources such as the Intergovernmental Panel on Climate Change.[120] But an agency must make its own.[121] It is, of course, acceptable for any agency to cite authoritative bodies such as the IPCC for information on climate change, but NHTSA must nonetheless make "its own case-by-case balancing judgment"[122] about climate change and its impacts from its own proposed actions and alternatives. Indeed, by proposing to roll back the current vehicle standards, by selecting a "Preferred Alternative" freezing efforts to control emissions as of 2021, and by proffering what it claims is a reasonable range of alternatives, NHTSA *has* made its own judgment. If it nonetheless has drawn no conclusions relating to climate change—as it says it has not—then it certainly has not taken the requisite "hard look" at the environmental effects of what it proposes. At a minimum, it would have to explain how its failure to reach a conclusion could be reconciled with the overwhelming scientific consensus and its own firm conclusions concerning climate change less than two years ago, when it co-authored the 2016 TAR (as well as in 2012 and before). But if NHTSA *has* drawn a conclusion—for example a conclusion that diverges from those reached in the TAR and other previous documents—it must disclose it and offer a reasoned, corroborated explanation.

As discussed in more detail below in connection with NHTSA's cumulative impacts analysis, the DEIS's climate change section also fails to describe the consequences of the increased greenhouse gas emissions in real-world terms that make them clear to the reader. NHTSA calculates that the direct and indirect impacts of its Preferred Alternative would lead to

---

[119] *See e.g.*, DEIS at 1-20, 5-22; *cf.* 2012 Final EIS, Chapter 5.4.1.2.
[120] DEIS, at 5-1.
[121] *U.S. Telecom Ass'n v. FCC*, 359 F.3d 554, 566 (D.C. Cir. 2004) (holding that federal agencies "may not subdelegate to outside entities—private or sovereign—absent affirmative evidence of authority to do so"); *Ergon-West Virginia, Inc. v. EPA*, 896 F.3d 600, 610, 613 (4th Cir. 2018); *City of Tacoma v. FERC*, 460 F. 3d 53, 75 (D.C. Cir. 2006).
[122] *E.g., Idaho v. Interstate Commerce Commission,* 35 F.3d 585, 595-96 (D.C. Cir. 1994).

atmospheric concentrations of CO_2 of 789 ppm, a temperature increase of 3.48°C, sea level rise of 30 inches, precipitation increases of 5.85 percent, and an increase in ocean acidification to 8.27 pH.[123] But NHTSA does not explain or describe what life on a planet this catastrophically overheated would look like, even though materials that translate these numbers to facts on the ground (such as heat maps for all areas of the United States) are readily available. (*See* discussion and references under "cumulative impacts" below.) Nor does it provide any estimate of the numbers of human deaths reasonably foreseeable under these intolerable conditions. In sum, NHTSA's direct/indirect impacts analysis falls far short of the "hard look" required.

b. Cumulative impacts

In the context of setting fuel economy standards, the need to take a hard look at the cumulative impacts of a proposed rule and its alternatives is well settled: "The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. Any given rule setting a CAFE standard might have an 'individually minor' effect on the environment, but these rules are 'collectively significant actions taking place over a period of time.'" *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) (quoting 40 C.F.R. § 1508.7). The DEIS fails this test in numerous ways.

The Joint Commenters are submitting to this docket a separate comment letter on the effects of climate change, both those already observed and those reasonably foreseeable through 2100 under various scenarios. Here we incorporate those comments by reference. Below we discuss the many ways in which NHTSA's discussion and treatment of the cumulative effects of climate change are unlawful, arbitrary or capricious.

1. Omission of comparative data

As in its discussion of the direct and indirect effects of the greenhouse gas emission increases caused by its Proposal and alternatives, NHTSA fails to take the requisite "hard look" at their cumulative effects. Notably, missing from the DEIS are key data tables that were presented in the 2012 Final EIS accompanying the MY2017-2025 standards:

- Tables showing total greenhouse gas emissions from new cars through 2100 in $MMTCO_2$ by alternative and as compared to the No Action Alternative, in meaningful time increments;[124]
- Tables showing the cumulative impacts of each action alternative as compared to the No Action Alternative in terms of monetized damages as measured by the social cost of carbon, in meaningful time increments.[125]

Here again, the absence of these crucial tables from the DEIS itself falls short of the requirement that NHTSA "present the environmental impacts of the proposal and the alternatives in

[123] DEIS, at S-15 – S-16.
[124] *See e.g.* 2012 Final EIS, at 5-102 - 5-103.
[125] 2012 Final EIS, at 5-104 - 5-105.

comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14.

2. The portrayal of cumulative climate change impacts as immaterial

NHTSA compares the cumulative effects in 2100 of the No Action Alternative to its Preferred Alternative as follows: atmospheric CO_2 would rise by 0.6 ppm, from 687.3 ppm to 687.9 ppm; temperatures would increase by 0.003°C; precipitation would increase by less than 0.01 percent; sea levels would rise by 0.06 centimeters from 70.22 centimeters to 70.28 centimeters; and ocean pH would increase by 0.0004 to 8.2719.[126] NHTSA then claims that because the projected climate effects "are extremely small compared with total projected future climate change, they would only marginally increase the potential risks associated with climate change."[127] Though NHTSA's discussion in the Proposal about why it proposes to freeze the standards from 2021 to 2026 even though they increase greenhouse gases lacks any overall rationale, here NHTSA effectively writes off their effects as immaterial ("extremely small")[128] by comparing them to total worldwide emissions by 2100.

In *Massachusetts v. EPA*, 549 U.S. 497, 523 (2007), the Supreme Court rejected this very same argument (there made to rebut petitioners' standing)--that incremental greenhouse gas emission reductions make no difference. The Supreme Court had this to say about EPA's claims:

> EPA ... maintains that its decision not to regulate greenhouse gas emissions from new motor vehicles contributes so insignificantly to petitioners' injuries that the Agency cannot be haled into federal court to answer for them. For the same reason, EPA does not believe that any realistic possibility exists that the relief petitioners seek would mitigate global climate change and remedy their injuries. That is especially so because predicted increases in greenhouse gas emissions from developing nations, particularly China and India, are likely to offset any marginal domestic decrease. [¶] But EPA overstates its case. Its argument rests on the erroneous assumption that a small incremental step, because it is incremental, can never be attacked in a federal judicial forum. Yet accepting that premise would doom most challenges to regulatory action ... [¶¶] ... Nor is it dispositive that developing countries such as China and India are poised to increase greenhouse gas emissions substantially over the next century: A reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere.

Id. at 523-24, 525-26. *See also Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) ("[a]ny given rule setting a CAFE standard might have an 'individually minor' effect on the environment, but these rules are 'collectively significant actions taking place over a period of time'" (quoting 40 C.F.R. § 1508.7)).

[126] DEIS, at S-19 - S-20.
[127] *Id*. at S-20.
[128] *Id*. at S-14.

While in 2007 EPA announced its reasoning clearly, NHTSA in 2018 does all it can to hide it; but the assertion that the Proposal and its alternatives make no difference to climate change, human suffering and death is the same and must be rejected for the same reasons. And certainly, characterizing these emissions as immaterial does not take the requisite "hard look."

NHTSA's approach to evaluating the significance of the climate impacts of its decision is precisely the kind of limited analysis that CEQ specifically directed agencies *not* to do:

> Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and *is not an appropriate basis* for deciding whether or to what extent to consider climate change impacts under NEPA. *Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives* and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.

CEQ Climate Guidance at 11 (emphasis added); see also *Massachusetts v. EPA*, 549 U.S. at 525-526.

Likewise, EPA has cautioned, in its 2009 motor vehicle endangerment finding under §202(a)(1):

> ...[N]o single greenhouse gas source category dominates on the global scale, and many (if not all) individual greenhouse gas source categories could appear small in comparison to the total, when, in fact, they could be very important contributors in terms of both absolute emissions or in comparison to other source categories, globally or within the United States. If the United States and the rest of the world are to combat the risks associated with global climate change, contributors must do their part even if their contributions to the global problem, measured in terms of percentage, are smaller than typically encountered when tackling solely regional or local environmental issues. The commenters' approach, if used globally, would effectively lead to a tragedy of the commons, whereby no country or source category would be accountable for contributing to the global problem of climate change, and nobody would take action as the problem persists and worsens.

74 Fed. Reg. at 66,543 (Dec. 15, 2009).

NHTSA's emissions disappearance act is even less credible than was EPA's 2007 (unlawful) position, as the proposed rule here would roll back already existing, protective regulations that reduce greenhouse gas emissions and instead take a regulatory step to *increase* them over the status quo. If regulations that by themselves would implement relatively small incremental

emissions decreases cannot be written off under *Massachusetts v. EPA*, regulations that actively increase emissions certainly cannot be either.

NHTSA's failure in this regard is all the more egregious because the nation's vehicle fleet is the single largest source of greenhouse gases in the U.S. and larger than many major nations' *entire* emissions inventories. *See* 549 U.S. at 524-25. The notion that the U.S. can simply throw up its hands and decline to tackle this huge emissions category would lead to the conclusion–irrational, for reasons pointed out by *Massachusetts* and by EPA's 2009 endangerment finding–that no source category is worth taking on.

Lastly, NHTSA does not sufficiently describe how it arrived at the fractional temperature and ppm increases and other fractional climate change indicators other than to state that it used a climate model called GCAM 6.0, as discussed below. NHTSA states that GCAM 6.0 is "based on a set of assumptions about drivers such as population, technology, socioeconomic changes, and global climate policies that correspond to stabilization, by 2100, … [at] CO_2 concentrations at roughly 678" ppm.[129] It adds that, "[a]lthough GCAM 6.0 does not explicitly include specific climate change mitigation policies, it does represent a plausible future pathway of global emissions in response to substantial global action to mitigate climate change. … [It] represents a reasonable proxy for the past, present, and reasonably foreseeable GHG emissions through 2100."[130] But such general assumptions, particularly assumptions that do not account even for all current, and much less all reasonably foreseeable, actions by third parties to reduce emissions, cannot take the place of the requisite "hard look" or the agency's obligation to "[r]igorously explore and objectively evaluate all reasonable alternatives ... so that reviewers may evaluate their comparative merits." 40 C.F.R. §§ 1502.14(a)-(b).

NHTSA does not analyze or explain, for example, how GCAM 6.0's assumptions are affected by the very Proposal and its alternatives under consideration in the DEIS, or whether the model incorporates the new and startling data about automakers' large investments into EV technology and numerous countries' adoption of targets to completely phase out sales of new internal combustion vehicles on or before 2040, a date less than the mid-point of the 2100 time frame that the DEIS purports to analyze. Instead, how NHTSA arrived at its apparently super-precise calculations of such things as fractional degrees of warming and ppm concentrations 82 years from now receives no reasoned explanation, and indeed is entirely impenetrable to the reader. The brief reference to an opaque climate model plainly does not meet NEPA's requirements.

3. The failure to disclose other reasonably foreseeable cumulative actions.

NHTSA's artificial minimization of the Proposal's effects is amplified by its use of "GCAM 6.0" modeling, which assumes a "moderate" response to climate change that results in 678 ppm of atmospheric CO_2 concentrations by 2100. At those concentrations, climate change would have already advanced to such an extent that overall worldwide emission increases would overwhelm what by themselves are highly significant differences among the action alternatives chosen now.

[129] DEIS, at 8-20.
[130] *Id*. at 8-20 - 8-21.

NHTSA uses two other scenarios in its sensitivity analysis, but both also assume very high increases in emissions (resulting in 544 ppm and 789 ppm in 2100, respectively). NHTSA does not present any scenario that assumes aggressive global action holding increases in ppm to 450 ppm (or returning to that level once emissions have peaked), even though such a response is clearly among the reasonably foreseeable actions by third parties in light of the catastrophic changes that inevitably accompany ppm and temperature ranges as high as those assumed. Forgoing this necessary comparison also ignores the Paris Climate Agreement, to which the U.S. remains a party and in which 195 nations pledged to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and pursu[e] efforts to limit the temperature increase to 1.5°C above pre-industrial levels."[131] It also violates NHTSA's obligation to "inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1. *See also Friends of Se.'s Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998) ("The existence of reasonable but unexamined alternatives renders an EIS inadequate"). As NHTSA describes only those among many alternative responses to the global climate threat that worsen the environmental and health impacts of carbon emissions beyond the breaking point, it has failed to comply with 40 C.F.R. § 1502.1.

Moreover, NEPA and its implementing regulations direct federal agencies to "[u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment," and "[u]se all practicable means ... to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment." 40 C.F.R. §§ 1500.2(e) and (f). Plainly, the proposed action and alternatives artificially force exactly the opposite outcome, and do not model a scenario where emission reductions from the light duty vehicle fleet would contribute to the avoidance or minimization of environmental harm. In sum, because NHTSA's analysis describes only massive worldwide failure to act in the face of enormous risks and masks the actual effects of actions taken, or not taken, during 2021-2026, while failing to disclose and discuss reasonable alternatives avoiding or minimizing those outcomes, the DEIS fails its purpose and must be withdrawn.

The agency also omits consideration of the effects of the current administration's overall deregulatory agenda, which seeks an across-the-board rollback of rulemakings designed to curb greenhouse gas emissions. Chief among those are EPA's proposals to rescind or amend the Clean Power Plan, which, if implemented, would significantly reduce emissions from power plants; efforts to weaken, delay, or eliminate rules and regulations that limit greenhouse gas emissions from the oil and gas sector; the Department of Interior's decision to end the moratorium on federal coal leasing; and the administration's decision to exit the Paris Agreement. A "hard look" cumulative impact analysis requires discussion of these other actions and a disclosure of the effect of taking them, or not taking them.

NHTSA must disclose and analyze the cumulative impacts of the current administration's numerous actions to roll back existing environmental regulations that reduce greenhouse gases in

[131] Paris Agreement, art. 2, para. (1)(a) (2015), available at https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

light of the special report recently issued by the IPCC. The report makes abundantly clear that emissions must be reduced dramatically *within the next decade* if we are to avoid massive additional damages by overshooting the target of limiting additional warming to no more than 1.5° C.[132] The six years of emissions the Proposal would affect (2021-2026) are the very years for which the agencies plan to *reverse* the progress in emission reductions from the vehicle fleet.

The IPCC Special Report concludes that pathways to limit warming to 1.5°C with little or no overshoot require "a rapid phase out of CO_2 emissions and deep emissions reductions in other GHGs and climate forcers."[133] In pathways consistent with a 1.5°C temperature increase, global net anthropogenic CO_2 emissions must decline *by about 45% from 2010 levels by 2030*, reaching net zero around 2050 (*high confidence).*[134] For a two-thirds chance for limiting warming to 1.5°C, CO_2 emissions must reach carbon neutrality in 25 years (*high confidence).*[135] The IPCC Special Report lays out in stark terms that a mere one-half of a degree Celsius of additional global warming makes a vast difference in avoiding immense damages: loss of food and water security, loss of coastal land and properties, loss of biodiversity, more and more extreme heat waves, droughts and flooding, population migrations, poverty, devastating health outcomes and innumerable lives lost.[136] And it leaves no doubt that emission reductions within *just the next decade* will make that difference.[137] The DEIS' attempt to minimize these devastating consequences while the agencies are actively putting a blowtorch to our already overheating planet during the next critical decade by reversing emissions reduction regulations is directly contrary to what the best available science makes clear must be done to avoid them.
And, even if the GCAM 6.0 assumptions—which do not include the administration's rules and proposals to eviscerate emission reduction regulations—were a reasonable projection of cumulative impacts, and even if the IPCC Special Report did not demonstrate the immense importance of acting now to reduce emissions, NHTSA must *explain* why it believes the differences among its alternatives are too small to matter. NHTSA does not do so.

Moreover, relying on a temperature increase as set by GCAM 6.0 as a result of *all* human-caused emissions is not the same as analyzing NHTSA's own contribution when combined with that of other policies of the current administration. When temperatures have already risen by 3°C or more, even fractional increases in temperature degrees (and less than one additional ppm of carbon in the atmosphere) may have significant effects. For example, NHTSA has undertaken no evaluation of whether the risk of the occurrence of tipping points would be affected under circumstances like these.[138] The Fourth National Climate Assessment concluded with very high confidence that large-scale shifts in the climate system, also known as tipping points, and the

---

[132] IPCC, *Global Warming of 1.5°C, An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (Oct. 6, 2018) ("IPCC Special Report"), available at http://www.ipcc.ch/report/sr15/.
[133] *Id.* at Chapter 2, 2-28.
[134] *Id.* at Summary for Policymakers, SPM-15.
[135] *Id.*
[136] *Id.* at Summary for Policymakers, SPM-8 - SPM-12.
[137] *Id.* at Summary for Policymakers, SPM-10 - SPM-12.
[138] *Cf.* DEIS at 5-27 - 5-28; 8-67 - 8-70.

compound effects of simultaneous extreme climate events have the potential to create unanticipated, and potentially abrupt and irreversible, "surprises" that become more likely as warming increases.[139] The IPCC Fifth Assessment Report similarly concluded that "[t]he risks of abrupt or irreversible changes increase as the magnitude of the warming increases."[140] The disastrous effects of compound extreme events are, in fact, already occurring, such as during Hurricane Sandy when sea level rise, abnormally high ocean temperatures, and high tides combined to intensify the storm and associated storm surge, and an atmospheric pressure field over Greenland steered the hurricane inland to an "exceptionally high-exposure location."[141]

In contrast to the DEIS' downplaying of the matter, in its 2012 Final EIS, NHTSA disclosed and discussed the interrelationship between the likelihood of reaching tipping points and temperature increases. The 2012 Final EIS noted that, based on

> "'growing evidence that even modest increases in [global mean temperature] could commit the climate system to the risk of very large impacts on multiple-century time scales,' the risks of large-scale discontinuities [tipping points] were expertly judged to begin being a source of substantial risk around 1°C (around 2°F). Smith *et al*. (2008) projected 2.5 °C (4.5°F) ... to be the 'possible trigger for commitment to large-scale global impacts over multiple-century time scales.'"[142]

In addition, the 2012 Final EIS noted that, "[t]emperature increases above 3°C increase the risk of triggering large-scale discontinuities, and there is general agreement among recent studies ... that these risks, although difficult to quantify, grow with greater anthropogenic warming."[143] The IPCC Fifth Assessment Report warned that increasing warming increases risk of abrupt and irreversible changes:

> With increasing warming, some physical and ecological systems are at risk of abrupt and/or irreversible changes. Risks associated with such tipping points are moderate between 0 and 1°C additional warming, since there are signs that both warm-water coral reefs and Arctic ecosystems are already experiencing irreversible regime shifts (*medium confidence*). Risks increase at a steepening rate under an additional warming of 1 to 2°C and become high above 3°C, due to the potential for large and irreversible sea level rise from ice sheet loss. For sustained

---

[139] U.S. Global Change Research Program, *Climate Science Special Report, Fourth National Climate Assessment* (Nov. 2017), at 412, available at https://science2017.globalchange.gov/downloads/CSSR_Ch15_Potential_Surprises.pdf ("USGCRP 2017") ("Therefore, there is significant potential for humanity's effect on the planet to result in unanticipated surprises and a broad consensus that the further and faster the Earth system is pushed towards warming, the greater the risk of such surprises.").

[140] IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp., at 73 ("IPCC Fifth Assessment Report").

[141] USGCRP 2017 at 416.

[142] 2012 Final EIS at 9-79.

[143] 2012 Final EIS at 5-156.

> warming above some threshold greater than ~0.5°C additional warming (*low confidence*) but less than ~3.5°C (*medium confidence*), near-complete loss of the Greenland ice sheet would occur over a millennium or more, eventually contributing up to 7 m to global mean sea level rise.[144]

For example, research indicates that a critical tipping point important to the stability of the West Antarctic Ice Sheet has been crossed, and that rapid and irreversible collapse of the ice sheet is likely in the next 200 to 900 years.[145] As stated by the Fourth National Climate Assessment:

> "Observational evidence suggests that ice dynamics already in progress have committed the planet to as much as 3.9 feet (1.2 m) worth of sea level rise from the West Antarctic Ice Sheet alone, although that amount is projected to occur over the course of many centuries. Plausible physical modeling indicates that, under the higher RCP8.5 scenario, Antarctic ice could contribute 3.3 feet (1 m) or more to global mean sea level over the remainder of this century, with some authors arguing that rates of change could be even faster."[146]

Moreover, despite the clear danger posed by and likelihood of tripping climate tipping points, NHTSA states that "the current state of science does not allow for quantifying how increased emissions from a specific policy or action might affect the probability and timing of abrupt climate change."[147] This statement is incorrect, and highly questionable in light of the fact that NHTSA is attempting to freeze all efforts to control the very largest source of greenhouse gas pollution in the United States. The Fourth National Climate Assessment states that there is "*very high confidence*" that "[s]ome feedbacks and potential state shifts can be modeled and quantified."[148] And NHTSA's justification cannot withstand scrutiny for another reason: under the cumulative impacts analysis, NHTSA is not tasked with quantifying how its Proposal to decrease U.S. mileage standards alone would affect tipping points; instead, it must assess the damages likely to arise from crossing them as a result of cumulative impacts from actions by others.

---

[144] IPCC Fifth Assessment Report at 72.

[145] Ian Joughin et al., *Marine Ice Sheet Collapse Potentially Under Way for the Thwaites Glacier Basin, West Antarctica*, 344 Science 735 (2014); J. Mouginot et al., *Sustained Increase in Ice Discharge from the Amundsen Sea Embayment, West Antarctica, from 1973 to 2013*, 41 Geophysical Res. Letters 1576 (2014); E. Rignot et al., *Widespread, Rapid Grounding Line Retreat of Pine Island, Thwaites, Smith, and Kohler Glaciers, West Antarctica, from 1992 to 2011*, 41 Geophysical Res. Letters 3502 (2014); Robert M. DeConto & David Pollard, *Contribution of Antarctica to Past and Future Sea-Level Rise*, 531 Nature 591 (2016); James Hansen et al., *Ice Melt, Sea Level Rise and Superstorms: Evidence from Paleoclimate Data, Climate Modeling, and Modern Observation that 2°C Global Warming Could Be Dangerous*, 16 Atmospheric Chemistry and Physics 3761 (2016).

[146] USGCRP 2017 at 420 (internal citations omitted).

[147] DEIS at 5-28.

[148] USGCRP at 411.

4. The failure to disclose the effect of delay.

NHTSA's presentation also masks the effect of delay. Because carbon emissions are long-lived (a time measured in centuries) and their effects are cumulative and do not diminish for millennia, any quantity of carbon emitted now causes much more damage than the same quantity of carbon emitted later. Again, in stark contrast to NHTSA's current DEIS, in its 2012 Final EIS, NHTSA disclosed the consequences of delay in its discussion of delaying mitigation: "Several recent studies have shown that delaying mitigation of GHG emissions results in greater accumulation of CO_2 in the atmosphere, thereby increasing the risk of crossing tipping points and triggering abrupt changes."[149] In 2014, the White House issued a report demonstrating that the cost of delay is not only extremely steep but also potentially irreversible, and rises exponentially as delay continues.[150] According to the National Research Council, "[e]missions of [CO2] from the burning of fossil fuels have ushered in a new epoch where human activities will largely determine the evolution of Earth's climate. Because [CO2] in the atmosphere is long lived, it can effectively lock Earth and future generations into a range of impacts, some of which could become very severe. Therefore, emission reduction choices made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia."[151] NHTSA's analysis, however, does not account for the effect of delaying climate action, leaving the reader to fail to appreciate that forgoing action now multiplies the later damage by many times. Particularly now that NHTSA has also proposed to slash the social cost of carbon to near-negligible amounts, NHTSA completely fails to account for this highly significant magnifying effect.

5. The failure to consider the impact of rapid proliferation of EVs.

NHTSA provides information about strong surges in sales of electric vehicles. It notes that China, the largest vehicle market in the world, has quotas for plug-in electric and fuel cell vehicles of at least 10 percent of each automaker's sales in China in 2019, rising to 12 percent in 2020, with higher annual targets expected thereafter; in fact, China is expected to phase out sales of internal combustion vehicles altogether by 2040.[152] NHTSA also states that Norway, the Netherlands, France, Austria, Denmark, Ireland, Japan, Portugal, Korea, Spain and Britain have also adopted zero-emission vehicle targets or pledged to end sales of new internal combustion vehicles between 2025 and 2040, and that the European Union and India are considering such phase-out targets by 2030.[153] And it notes that ten U.S. states have also adopted zero-emission vehicle targets that rise by 2 percent per year to 16 percent in 2025.[154] NHTSA also notes automakers' investments of many billions of dollars into EV models and the planned

[149] 2012 FEIS at 5-159 (citations omitted).
[150] The White House, *The Cost of Delaying Action to Stem Climate Change*, at 2 (July 2014), https://obamawhitehouse.archives.gov/the-press-office/2014/07/29/white-house-report-cost-delaying-action-stem-climate-change.
[151] National Research Council, *Climate Stabilization Targets. Emissions, Concentrations, and Impacts over Decades to Millennia*, at 3 (2011).
[152] DEIS, at 8-5.
[153] *Id.*
[154] *Id.*

introduction of numerous new such models into the market after 2019.[155] Despite all of this information, NHTSA does *not* factor these developments into its projections of the future vehicle fleet or its emissions of greenhouse gases, traditional pollutants, or toxics. Nor does it consider whether a freeze in vehicle standards will hamper technological innovation and development, including EV development, not only in the U.S. but also around the world, and what impact such retrenchment would have world-wide. Instead, NHTSA simply calls the impact of increasing EV sales and targets "too complex" for quantification and does not factor them into its models.[156] In light of the abundant evidence of a surge in EV sales in the near future, NHTSA's failure to account for it is turning a blind eye to the obvious—the opposite of a "hard look."

6. The failure to adequately describe the real world consequences of the action.

NHTSA also errs by using as its only assumptions about cumulative actions to stem climate change those scenarios that leave the world with such untenable results as temperature increases of up to 3.6°C or ppm up to nearly 800, without portraying what such a world will actually look like. There are numerous tools available now to do so, including tools showing the amount of land that will vanish when sea levels rise as projected,[157] the crops that will fail when temperatures reach those projected,[158] the size of the human migration that will occur when land becomes uninhabitable,[159] and the premature mortality rate that will increase within predictable ranges[160] when temperatures exceed 3.6°C above pre-industrial levels. NHTSA's failure to describe the real-world consequences of the alternatives in ways a reader can understand fails the requirements of NEPA and above-cited provisions of the CEQ regulations.

---

[155] DEIS, at 8-7.
[156] DEIS, at S-17.
[157] *See* online mapping tools: NOAA, Office for Coastal Management, DigitalCoast, Sea Level Rise Viewer, https://coast.noaa.gov/digitalcoast/tools/slr.html; Climate Central, Surging Seas Risk Zone Map, https://ss2.climatecentral.org/#12/40.7298/-74.0070?show=satellite&projections=0-K14_RCP85-SLR&level=5&unit=feet&pois=hide ; Mathew E. Hauer et al., *Millions Projected to be at Risk from Sea-Level Rise in the Continental United States*, 6 Nature Climate Change 691 (2016); Hamed R. Moftakhari et al., *Increased Nuisance Flooding Along the Coasts of the United States due to Sea Level Rise: Past and future*, 42 Geophysical Res. Letters 9846 (2015); Kristina A. Dahl et al., *Sea Level Rise Drives Increased Tidal Flooding Frequency at Tide Gauges Along the U.S. East and Gulf Coasts: Projections for 2030 and 2045*, 12 PLoS ONE 2: e0170949 (2017).
[158] Chuang Zhao et al., *Temperature Increase Reduced Global Yields of Major Crops in Four Independent Estimates*, 114 Proc. of the Nat'l Acad. of Sci. 9326 (2017); Curtis A. Deutsch et al., *Increase in Crop Losses to Insect Pests in a Warming Climate*, 361 Science 916 (2018).
[159] Mathew E. Hauer, *Migration Induced by Sea-Level Rise Could Reshape the US Population Landscape*, 7 Nature Climate Change 321 (2017).
[160] Antonio Gasparrini et al., *Projections of Temperature-Related Excess Mortality Under Climate Change Scenarios*, 1 Lancet Planet Health e360 (2017); Solomon Hsiang et al., *Estimating Economic Damage from Climate Change in the United States*, 356 Science 1362 (2017); Raquel A. Silva et al., *Future Global Mortality from Changes in Air Pollution Attributable to Climate Change*, 7 Nature Climate Change 647 (2017); Marshall Burke et al., *Higher Temperatures Increase Suicide Rates in the United States and Mexico*, 8 Nature Climate Change 723 (2018); Drew Shindell et al., *Quantified, Localized Health Benefits of Accelerated Carbon Dioxide Emissions Reductions*, 8 Nature Climate Change 291 (2018).

7. The failure to disclose climate change damage already caused.

Also missing is a description, let alone quantification, of climate change damage that has already occurred during the last several years, an assessment which is now possible because of advances in attribution studies.[161] As summarized by the Fourth National Climate Assessment, "[i]n addition to warming, many other aspects of global climate are changing, primarily in response to human activities. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor."[162] For example, recent studies of Hurricane Harvey and the 2016 flood in south Louisiana concluded that climate warming made the record rainfall totals of both disasters more likely and intense.[163] In 2016, the intense marine heat wave off Alaska—which drove oyster farm failures, harmful algal blooms, mass seabird die offs, and failed subsistence harvest—was found to be up to fifty times more likely due to anthropogenic warming.[164] In the continental western U.S., human-caused climate change accounted for more than half of observed increases in forest fuel aridity from 1979 to 2015.[165] One model suggests that anthropogenic climate change may have quintupled the risk of extreme vapor pressure deficit (a measure of atmospheric moisture) in the western U.S. and Canada in 2016, increasing the risk of wildfire.[166] In addition to warming Earth's climate, CO_2 emissions have made the surface of global oceans about 30 percent more acidic over the last 150 years.[167] Studies show hundreds of billions in climate change damage suffered *annually* in recent years. For example, research shows that the cost of U.S. hurricane damage has increased because of human-caused climate change, estimated as adding between $2 and $14 billion of losses in 2005.[168] In 2017, there were 16 separate extreme weather and climate disaster events in the U.S. with damages exceeding $1

---

[161] Stephanie C. Herring et al., *Explaining Extreme Events of 2016 from a Climate Perspective*, 99 Bull. of the Am. Meteorological Soc'y S1 (2018).
[162] USGCRP 2017, at 10.
[163] Kerry Emanuel, *Assessing the Present and Future Probability of Hurricane Harvey's Rainfall* 2017, 114 Proc. of the Nat'l Acad. of Sci. Early Edition 12681 (2017); Mark D. Risser & Michael F. Wehner, *Attributable Human-induced Changes in the Likelihood and Magnitude of the Observed Extreme Precipitation During Hurricane Harvey*, 44 Geophys. Res. Lett. 12,457 (2017); Geert J. van Oldenborgh et al., *Attribution of Extreme Rainfall from Hurricane Harvey*, 12 Environ. Res. Lett. 124,009 (2017); Karin van der Wiel et al., *Rapid Attribution of the August 2016 Flood-inducing Extreme Precipitation in South Louisiana to Climate Change*, 21 Hydrol. Earth Syst. Sci. 897 (2017).
[164] Eric C. Oliver et al., *Anthropogenic and Natural Influences on Record 2016 Marine Heat Waves*, 99 Bull. of the Am. Meteorological Soc'y S44 (2017); John E. Walsh et al., *The High Latitude Marine Heat Wave of 2016 and Its Impacts on Alaska*, 99 Bull. of the Am. Meteorological Soc'y S39 (2017).
[165] USGCRP 2017 at 243.
[166] Simon F.B. Tett et al., *Anthropogenic Forcings and Associated Changes in Fires Risk in Western North America and Australia During 2015/16*, 99 Bull. of the Am. Meteorological Soc'y S60 (2018).
[167] USGCRP 2017 at 372.
[168] Francisco Estrada et al., *Economic Losses from US Hurricanes Consistent with an Influence from Climate Change*, 8 Nature Geoscience 880 (2015).

billion each, totaling $312 billion and making 2017 by far the costliest year on record in terms of climate harms.[169]

8. The failure to explain its reasoning.

NHTSA must explain the basis for its conclusion that the incremental additional GHG emissions resulting from each alternative are immaterial. It must disclose whether, in NHTSA's view, this is so because (a) it believes that the consequences of climate change cannot be meaningfully addressed, and thus the world will inevitably suffer the outcome it describes for 2100 regardless of its actions now; or (b) it has concluded that atmospheric carbon concentrations in the neighborhood of 800 ppm and a 3.6°C increase in warming simply are not worrisome in any event because they do no or only insignificant harm to the environment and human health, and that incremental increases like those caused by the Proposal (.0003) do not change that benign outcome (a conclusion contradicted by the overwhelming scientific consensus); (c) it believes that someone other than NHTSA is responsible for reducing greenhouse gases; or (d) it has any other justification for proposing an alternative that increases carbon emissions even while the planet becomes ever hotter. NHTSA must disclose the rationale behind its projections and choices so the reader can understand and comment on NHTSA's justification.

9. The failure to model alternatives within the planet's remaining carbon budget.

While NHTSA purports to undertake an analysis of its action's effect on the planet's remaining carbon budget, it fails to present any alternative that would allow the U.S. fleet's emissions to stay within that budget. According to the IPCC, the total cumulative anthropogenic emissions of CO_2 from 2011 onward must remain below about 1,000 gigatonnes of carbon ($GtCO_2$) for a 66 percent probability of limiting warming to 2°C above pre-industrial levels, and to 400 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 1.5°C.[170] The U.S. carbon budget for limiting temperature rise to well below 2°C has been estimated at 25 $GtCO_2eq$ to 57 $GtCO_2eq$ on average,[171] depending on the sharing principles used to apportion the global budget across countries,[172] while the U.S. budget for limiting temperature rise to 2°C ranges from 34

[169] NOAA National Centers for Environmental Information (NCEI), *U.S. Billion-Dollar Weather and Climate Disasters* (2018), https://www.ncdc.noaa.gov/billions/; *Id*. at *Summary Stats* (updated for 2017 only), https://www.ncdc.noaa.gov/billions/summary-stats.

[170] IPCC Fifth Assessment Report at 63-64 & tbl. 2.2.

[171] Yann Robiou du Pont et al., *Equitable Mitigation to Achieve the Paris Agreement Goals*, 7 Nature Climate Change 38 (2017). Quantities measured in GtCO2eq include the mass emissions from CO2 as well as the other well-mixed greenhouse gases (CO2,methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and SF6) converted into CO2-equivalent values, while quantities measured in GtCO2 refer to mass emissions of just CO2 itself.

[172] Robiou du Pont et al. (2017) averaged across IPCC equity sharing principles to estimate the U.S. carbon budget from 2010 to 2100 for a 50 percent chance of returning global average temperature rise to 1.5°C by 2100, consistent with the Paris Agreement's "well below 2°C" target, and based on a cost-optimal model. The study estimated the U.S. carbon budget consistent with a 1.5°C target at 25 GtCO2eq by averaging across four equity principles: capability, equal emissions per capita, greenhouse development rights, and equal cumulative emissions per capita. The study estimated the U.S. budget at 57

$GtCO_2$ to 123 $GtCO_2$.[173] Although the cited studies differ in terms of certain assumptions and normative emphases, they all tell the same fundamental story: under any conceivable scenario, the remaining U.S. carbon budget for limiting global average temperature rise to 1.5°C or 2°C is extremely small and is rapidly being consumed. In the DEIS, NHTSA concludes that from 2016 to 2100, the fleet would consume 23 GTC, or 5.2% of the total budget under the No Action Alternative, and 25 $GtCO_2$, or 5.7 %, under the Preferred Alternative. But NHTSA fails to analyze by how much emissions would have to be reduced between 2021 and 2100 to stay within a U.S. allocation of the carbon budget, and perfunctorily concludes that remaining within it is "not currently technologically feasible or economically practicable."[174] In light of the fact that NHTSA does undertake a projection of carbon emissions 82 years into the future, NHTSA's refusal to consider reasonable alternatives resulting in avoiding the exceedance of the U.S. carbon budget is unreasonable. This superficial dismissal of what is a crucially important inquiry stands in stark contrast to NHTSA's strenuous efforts to justify weakening the standards, reduce the social cost of carbon and obscure the real world effect of a 3.6°C temperature rise. In order to undertake a hard look at what its Proposal will do to the remaining carbon budget, NHTSA must also take account of the findings of the IPCC Special Report.[175]

The tools to perform this type of analysis exist. Studies conclude that, when analyzing the transportation sector as one of seven "stabilization wedges" (or activity bundles) from which carbon emission reductions can be achieved to hold global CO_2 concentrations to certain levels of ppm, the average fuel economy the world's passenger cars and light truck fleet would have to achieve can be determined.[176] A similar analysis can estimate what stringency increases are required from the U.S. light duty vehicle fleet to contribute proportionally to the goal of keeping within the remaining U.S. carbon budget, or to keep temperature increases at or below 2°C.

10. The failure to take account of EPA's statutory obligation to reduce greenhouse gases.

The cumulative impacts analysis must pay particular attention to the actions of EPA, which is statutorily charged with reducing greenhouse gases from vehicles. EPA has tackled this mandate since 2009, but NHTSA now ignores EPA's mission, and failed to correct most of the errors and

---

GtCO2eq when averaging across five sharing principles, adding the constant emissions ratio to the four above-mentioned principles. However, the constant emissions ratio, which maintains current emissions ratios, is not considered to be an equitable sharing principle because it is a grandfathering approach that "privileges today's high-emitting countries when allocating future emission entitlements." Sivan Kartha et al., *Cascading Biases Against Poorer Countries*, 8 Nature Climate Change 348 (2018) (discussion of sharing principles).

[173] Yann Robiou du Pont et al., *Equitable Mitigation to Achieve the Paris Agreement Goals*, 7 Nature Climate Change 38 (2017); Glen P. Peters et al., *Measuring a Fair and Ambitious Climate Agreement Using Cumulative Emissions*, 10 Envtl. Res. Lett. 105004 (2015); Renaud Gignac & H. Damon Matthews, *Allocating a 2C Cumulative Carbon Budget to Countries*, 10 Envtl. Res. Lett. 075004 (2015).

[174] DEIS, at 5-30.

[175] IPCC Special Report at Summary for Policymakers, SPM-16.

[176] S. Pacala & R. Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies*, 305 Science 968, 969-70 (2004); s*ee also* R. Socolow, *Wedges Reaffirmed*, Bull. of the Atomic Scientists (2011).

modeling faults pointed out to it by senior EPA staff before the Proposal was published.[177] Instead, NHTSA proposes that that EPA will jettison credits, established under Clean Air Act authority, for actions such as using less polluting air conditioner refrigerants, leakage prevention, and reductions in nitrous oxide and methane emissions, all to "[t]o better align the programs."[178] That explanation bears no scrutiny, as a joint program has operated for years with these credits intact.

V. NHTSA's Analysis Fails to Take the Requisite Hard Look because it Lacks Scientific and Data Integrity

NEPA requires that environmental review documents contain "high quality" information and "[a]ccurate scientific analysis" sufficient to "help public officials make decisions that are based on understanding environmental consequences." 40 C.F.R. §§ 1500.1(b), (c). To fulfill this requirement, agencies have a duty to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." 40 C.F.R. § 1502.24. NHTSA's analysis misses this mark in numerous ways.

First, as discussed above, NHTSA's analysis of its preferred action and other alternatives is deeply distorted because of the flaws in, among other things, its scrappage model, its pricing assumptions, the way it factors an unsupported value of 20 percent for the rebound effect into its calculations, the phantom fatalities it ascribes to the No Action alternative, and the other ways described here and in Joint Commenters' comments on the NPRM. These errors are caused by the use of data that lacks scientific or professional integrity and render NHTSA's Proposal untenable.

Second, also as discussed above, NHTSA's analysis of its Proposal's cumulative effects is scientifically flawed because it omits highly pertinent data, artificially minimizes the significance of the alternatives' differences, and is erroneous in other respects. The cumulative effects analysis fails to use available, peer-reviewed and highly pertinent studies and thus lacks professional and scientific integrity.

Third, NHTSA's analysis of the social cost of carbon (SCC)[179] is fundamentally flawed. The analysis employs discount rates of 3 percent and 7 percent, but the use of a 7 percent discount rate for climate change damages is contrary to the overwhelming consensus among economists.[180] Indeed, recent economic studies state that the discount should be set lower than 3

[177] Email from William Charmley, EPA, to Chandana Achanta, OMB (June 18, 2018), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453, Email 5.
[178] DEIS, at 1-7.
[179] The Joint Commenters here refer to the comments submitted to this docket by the Institute for Policy Integrity, which discuss the errors in NHTSA's social cost of carbon analysis and calculations in greater detail.
[180] *E.g.*, Richard Newell, *Unpacking the Administration's Revised Social Cost of Carbon* (Oct. 10, 2017), available at http://www.rff.org/blog/2017/unpacking-administration-s-revised-social-cost-carbon. *See* Comments from Robert Pindyck, Massachusetts Institute of Technology, Sloan School of Management, to Catherine Cook, BLM, *Comments on Proposed Rule and Regulatory Impact Analysis on the Delay and*

percent and closer to 1 percent.[181] The SCC analysis also lacks professional integrity because NHTSA does not perform an adequate sensitivity analysis. NHTSA acknowledges that intergenerational costs (such as climate change) necessitate a lower discount rate, typically between 1 and 3 percent.[182] Nonetheless, the only "sensitivity analysis" conducted used a discount rate of 2.5 percent – a mere half percent below the standard range of discount rates. This analysis is entirely insufficient, as the "sensitivity" discount rate is so similar as to provide neither context nor comparison to the standard rates. The SCC analysis also defies fundamental climate science by setting the range of climate sensitivity—the amount by which temperature increases with increased atmospheric GHGs—between 0 and 10. But it is impossible for there to be no change in temperature when greenhouse gas concentrations increase. A more reasonable lower limit would be 1.3°C.[183] Similarly unscientific is NHTSA's decision to exclude from the SCC all effects caused outside of the United States, even though NHTSA admits that greenhouse gases are well-mixed in the atmosphere and their effects are experienced worldwide.[184] By comparing NHTSA's 2018 PRIA analysis with NHTSA's 2012 DEIS—which used discount rates and accounted for global climate damages—the following table demonstrates the vast distortion in values caused by NHTSA's combined, scientifically unjustified choices of an inordinately high discount rate and the exclusion of all climate damage save that occurring in the United States:

Year	**2012 DEIS 3% discount**	**2012 DEIS 5% discount**	**PRIA 3% discount**	**PRIA 7% discount**
2020	$42/metric ton	$12/metric ton	$7/metric ton	$1/metric ton
2050	$69/metric ton	$26/metric ton	$10/metric ton	$2/metric ton

A related error is the failure adequately to monetize total health benefits of reducing carbon emissions that accrue due to reductions in co-pollutants when fossil fuel consumption and CO_2 emissions are reduced. One study estimated that the health and environmental cost of combined greenhouse gas and co-pollutants emitted for each gallon of gasoline combusted is approximately $3.80, with the cost of each gallon of diesel approximately $4.80.[185] Early reductions in fossil fuel consumption also have significantly greater monetized health benefits than delayed

---

Suspension of Certain Requirements for Waste Prevention and Resource Conservation (Nov. 5, 2017), at 4, available at https://www.regulations.gov/document?D=BLM-2017-0002-16107. *See also* comments on the social cost of carbon by the Institute for Policy Integrity submitted to this docket.

[181] *E.g.*, Martin L. Weitzman, *Why the Far Future Should be Discounted at Its Lowest Possible Rate*, 36 Journal of Envtl. Econ. & Mgmt. 201 (1998); Kenneth J. Arrow et al., *Determining Benefits and Costs for Future Generations*, 341 Science 349 (2013); Nicholas H. Stern, *Stern Review: The Economics of Climate Change* (2007).

[182] PRIA at 1102.

[183] Drew T. Shindell, *The Social Cost of Atmospheric Release*, 130 Climatic Change 311, 315 (2015).

[184] Even without the errors introduced by NHTSA, many economists now believe that the SCC is just the lower bound of actual climate change damage. *See, e.g.*, Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 Nature 173 (2014) (explaining that current estimates omit key damage categories and, therefore, are very likely underestimates).

[185] Drew T. Shindell, *The Social Cost of Atmospheric Release*, 130 Climatic Change 311, 321 (2015).

action.[186] The study's authors also calculated that approximately 68 percent of the benefits of greenhouse and co-pollutant reduction stemming from reduced fossil fuel consumption in transportation would be local and near term.[187]

Another recent study shows that the new "regional" SCC used in NHTSA's analysis is a disturbingly low underestimate. The study created a county-level model of climate impacts and costs in the U.S. The new and more precise model showed that climate costs increase non-linearly with increases in temperature. It estimated costs just in the U.S. to be approximately 1.2 percent of national GDP with each one degree rise in temperature.[188] This model is more exact than the economic models employed in the PRIA and addresses US-specific damages, highlighting the inadequacy of the analysis upon which NHTSA relies for its cost-benefit analysis.

Equally unprofessional is NHTSA's failure to correct most of the errors in its analysis pointed out to it by senior EPA staff members in a memorandum submitted to NHTSA on June 18, 2018, which documented those errors and faulty assumptions underlying NHTSA's technical work.[189] In the DEIS, NHTSA fails to disclose that numerous problems inherent in its work had been discovered by EPA staff and discussed with NHTSA before the NPRM and the DEIS were published, much less explain why EPA's analysis was incorrect. These are fundamental failures of disclosure and discussion, and render the DEIS invalid.

VI. The Agency's Cost-Benefit Analysis is Fatally Flawed in Other Ways

When agencies perform a cost-benefit analysis of their rulemaking, they must do so fairly by examining both the costs and the benefits, and they may not put a thumb on the scale to skew the outcome. *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1198 (9th Cir. 2008) ("[e]ven if NHTSA may use a cost-benefit analysis to determine the 'maximum feasible' fuel economy standard, it cannot put a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards").

As a threshold matter, regulations may impose substantial costs to achieve their protective mandates as long as those costs are not "excessive," "exorbitant," or "more than the industry could bear and survive." *See, e.g.*, *Lignite Energy Council v. EPA*, 198 F.3d 930, 933 (D.C. Cir. 1999); *Sierra Club v. Costle*, 657 F.2d at 383; *Portland Cement Ass'n v. Train*, 513 F.2d 506, 508 (D.C. Cir. 1975). In the context of setting fuel economy standards for the light duty vehicle fleet, the Ninth Circuit has stated that

[186] Drew T. Shindell et al., *Quantified, Localized Health Benefits of Accelerated Carbon Dioxide Emissions Reductions*, 8 Nature Climate Change 291 (2018).
[187] *Id.* at supplementary material page 5 – 6.
[188] Solomon Hsiang et al., *Estimating Economic Damage from Climate Change in the United States*, 356 Science 1362, 1362 (2017).
[189] Email from William Charmley, EPA, to Chandana Achanta, OMB (June 18, 2018), https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453, Email 5.

> "not equating cost-benefit considerations with economic practicability is consistent with the goal of achieving maximum feasible fuel economy by allowing economically and technologically possible standards which will improve fuel economy but which an analysis, subject to many practical limitations, might indicate are not cost-beneficial ... A cost-benefit analysis would be useful in considering [economic practicability], but sole reliance on such an analysis would be contrary to the mandate of the Act."

Ctr. for Biological Diversity v. NHTSA, 538 F.3d at 1196-97 (internal citations omitted). And, whatever method NHTSA uses to determine costs and benefits, "NHTSA cannot set fuel economy standards that are contrary to Congress's purpose in enacting the EPCA—energy conservation." *Id.* at 1197. And even if NHTSA cannot quantify specific benefits, it must express and consider them qualitatively.

Here, the DEIS at every turn underestimates the benefits of the augural standards and inflates their costs. Conversely, the agency overestimates the benefits of the Preferred Alternative and undervalues its costs. It uses faulty cost-benefit arguments to nullify, by agency fiat, the Congressional mandate of energy conservation. It accomplishes this by putting a sledgehammer to the cost-benefit scale itself, wiping away the catastrophic effects of climate change nearly altogether.

As discussed above, the agency's discussion of the direct, indirect, and cumulative impacts of climate change and its erroneous social cost of carbon calculations are fundamentally flawed and require the DEIS to be withdrawn. NHTSA also skews the results in the following ways:

- While it purports to be able to quantify with precision the traffic fatalities allegedly caused by the rule it seeks to replace, it does not quantify the fatalities attributable to global warming beyond 2035, leaving the effects of what are certain to be very large increases in premature mortality during 65 additional years unmentioned.
- The DEIS has not disclosed or discussed, and much less monetized, the huge costs of the more frequent and more extreme weather events in the recent decade, such as floods to droughts to heat waves to wildfires, even though peer-reviewed studies have concluded that last year alone, those damages attributable to climate change were in the hundreds of billions of dollars under conservative estimates.[190] NHTSA must take into account these actual damage figures and the high probability that they will recur and increase in frequency and severity as temperatures rise into account.
- In light of the recent advances in climate science, attribution studies, and detailed understanding of regional impacts, NHTSA cannot rely only on GCAM 6.0 or similar models to project climate change damages.
- Upstream GHG emissions from oil production are significantly underestimated. NHTSA also predicts that, as a result of the recent Executive Order directing increases in domestic oil production, the percentage of unconventional oil in the fuel

[190] *E.g.*, EPA, *Multi-Model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment*, 209-10 (2017), *available at* https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=335095 ("USEPA 2017").

> mix will increase further. Because unconventional extraction methods and the extraction of shale oil are much more energy intensive, upstream GHG emissions associated with the consumption of that oil is higher than NHTSA estimates.

In sum, the DEIS ignores rather than takes a hard look at the large-scale environmental and human health damage its Proposal inflicts and does not comply with NEPA's requirements.

VII. NHTSA Failed Adequately to Describe Available Mitigation Measures

NEPA requires agencies to describe mitigation measures in detail. 40 C.F.R. § 1502.16(h); 1502.14(f). "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies …" Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,031 (Mar. 23, 1981). In addressing the duty to discuss mitigation measures, courts have held that the "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). A "perfunctory description" of mitigation measures, without supporting analytical data analyzing their efficacy, is inadequate to satisfy NEPA's requirements that an agency take a "hard look" at possible mitigating measures. *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998). And an agency's "broad generalizations and vague references to mitigation measures ... do not constitute the detail as to mitigation measures that would be undertaken, and their effectiveness, that the [agency] is required to provide." *Id*. at 1380-81.

NHTSA's proposal to undo its augural standards for MY2022-2025 and weaken its final standards for MY2021 light duty vehicles—standards that it reaffirmed less than two years ago—and to join with EPA in rescinding the currently effective greenhouse gas emission standards for that fleet is unprecedented. NHTSA is embarking on this at-all-costs deregulatory agenda even though vehicles constitute the nation's largest source of greenhouse gas emissions, and though it admits that even under its own skewed assumptions, its proposal and alternatives will increase fuel consumption, greenhouse gas and criteria pollutants, and the attendant adverse health effects.[191] Nonetheless, NHTSA spends just three desultory pages on vague "mitigation" measures, none of which, it proclaims, lie within its own power.

The agency rests its get-out-of-jail-free-card approach entirely on the assertion, without analysis or discussion, that it "does not have the jurisdiction to regulate the specified pollutants that are projected to increase as a result of the Proposed Action and alternatives."[192] But that assertion is beside the point. NHTSA is the very agency that has not only the authority, but the duty to set fuel efficiency standards for vehicles, and the direct result of the choice it proposes to make is the increase of the pollutants in question, as NHTSA admits throughout the DEIS and even in the

[191] DEIS, at 9-1.
[192] DEIS, at 9-2.

paragraph directly preceding its claim of lack of ability to do anything about the problem. It is axiomatic that fuel efficiency standards set at levels of the No Action Alternative or at more stringent levels would eliminate the additional pollution created by the proposed freeze. Mitigation, therefore, is directly in NHTSA's hands, and its attempt to pin responsibility for cleaning up the environmental harms flowing from its decision onto other agencies is unavailing. NHTSA cannot shield itself from its duty to disclose and discuss the obvious mitigating measures under its control—setting "maximum feasible" fuel efficiency standards though 2025 instead of freezing at either 2020 or 2021 levels. Similar to the agency in *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017), NHTSA here is the "'legally relevant cause' of the direct and indirect environmental effects" at issue, *id.* at 1373, and is not excused from complying fully with NEPA. *See also DOT v. Public Citizen*, 541 U.S. 752, 753 (2004) (agency excused from NEPA obligations only where agency had no ability to take actions that could lessen the environmental impacts).

VIII. The DEIS is Arbitrary and Capricious.

The Administrative Procedure Act, 5 U.S.C. §§ 701-706, provides that agency action must be set aside if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d at 1194 (internal citation omitted). "In the NEPA context, an agency's EIS is arbitrary and capricious if it fails to take a 'hard look' at the environmental effects of the alternatives before it." *Wildearth Guardians v. BLM*, 870 F.3d at 1233 (citation omitted).

An agency rule is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 43 (1983). An "[u]nexplained inconsistency" between agency actions is "a reason for holding an interpretation to be an arbitrary and capricious change." *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005). And "an agency changing its course must supply a reasoned analysis." *State Farm*, 463 U.S. at 57 (citation omitted).

FCC v. Fox Television Stations explains that an agency's policy change complies with the APA if the agency (1) displays "awareness that it is changing position," (2) shows that "the new policy is permissible under the statute," (3) "believes" the new policy is better, and (4) provides "good reasons" for the new policy, which, if the "new policy rests upon factual findings that contradict those which underlay its prior policy," must include "a reasoned explanation ... for disregarding facts and circumstances that underlay or were engendered by the prior policy." 556 U.S. at 515-16 (emphasis omitted). The DEIS fails all of these requirements.

The DEIS fails these principles in every respect, as outlined in more detail above. It does not adhere to basic principles of reasoned decision making because—among numerous other flaws—it does not adequately explain the agency's departure from its 2012 Final EIS or the TAR it issued together with EPA in 2016, less than two years from the date of NHTSA's complete

about-face. The DEIS is premised on a number of central assertions, each of which is directly contrary to the positions it held in those earlier actions. Among them are that (1) energy conservation is no longer necessary (and that Congress' intent to the contrary can be ignored); (2) the increases in greenhouse gases are immaterial, but it is unnecessary to explain why that is true; (3) the harmful health effects from the additional criteria pollutants are acceptable; (4) the automotive technology to reach the augural standards is either not available, or is too expensive, or both; (5) consumer safety is assured only when fuel efficiency is reduced, and thousands more people will die if the augural standards were finalized and EPA's MY2017-2025 greenhouse gas emission rules remained in effect; (6) decreased fuel efficiency will decrease the number of cars on the road and the vehicle miles driven; and (7) consumers do not value and not will not buy more efficient vehicles.

Yet, the DEIS does not discuss that these premises differ drastically from the 2012 Final EIS, much less provide a reasoned explanation for that departure. As to the 2016 TAR, NHTSA simply fails to mention it altogether. Both documents, however, and the voluminous factual records that support them, determined that the augural standards through 2025 and EPA's existing greenhouse gas standards were technologically feasible and achievable for the auto industry. The DEIS' failure to explain why that is no longer the case is arbitrary and capricious. *FCC v. Fox Television Stations, Inc.* 556 U.S. 502, 515-16 (2009); *Encino Motorcars v. Navarro,* 136 S. Ct. 2117, 2127 (2016). And in this case, NHTSA must provide a more detailed justification for its Proposal compared to what would suffice for a new policy created on a blank slate, since "its new policy rests upon factual findings that contradict those which underlay its prior policy." *Fox* at 515. Yet it has provided none, save for its assertion that conservation of energy is no longer needed.

IX. The EIS As A Whole Fails the Readability Test

An EIS "must be organized and written so as to be readily understandable by governmental decisionmakers and by interested non-professional laypersons likely to be affected by actions taken under the EIS." *Or. Envtl. Council v. Kunzman*, 817 F.2d 484, 494 (9th Cir. 1987). The DEIS fails that standard because its two fundamental premises are nonsensical and not based on fact.

As discussed above, the DEIS' conclusion that weakening the CAFE standards will increase safety is based on the arguments that fewer miles will be driven (the rebound effect and the scrappage effect), and that those miles will be driven by safer, newer, and less polluting vehicles. As senior EPA staff has pointed out in a submission to the docket,[193] neither of those arguments makes sense in the context of this EIS.

The Rebound Effect. As stated above, the rebound effect is the assertion that, as vehicle efficiency improves, vehicle miles traveled (VMT) will increase. The per-mile costs associated with that increased VMT are presented as offsetting some of the benefits of increased

[193] Email from William Charmley, EPA, to Chandana Achanta, OMB (June 18, 2018), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453, Email 5.

efficiency.[194] In the 2012 standard, the agencies used a 10% rebound effect value, noting that the available literature supported that figure.[195]

The DEIS revises this figure, and instead assumes a 20% rebound effect. To arrive at this new figure, the agencies contort findings from studies undertaken post-2012, ignore other studies and meta-analyses undertaken post-2012, and erroneously suggest that recent literature undermines the conclusion that the rebound effect decreases as income increases. Arbitrarily utilizing a 20% rate distorts the emission results: without it, the differential in GHG and criteria pollutant emissions (and the purported safety impacts) between the alternatives would be substantially lower.

The Scrappage Effect. The scrappage analysis projects that fewer overall cars (thus less overall VMT) will be driven under the rollback. This is because the DEIS and NPRM claim that new car prices will be lower under the Proposed Vehicle Rollback, and that, because used car values are purportedly influenced by new car prices, used car values will also decrease. The agencies then assert that, as used car prices decrease, consumers will discard their old cars rather than continuing to drive them. But the agencies also take pains to describe that those consumers will not replace their old cars, nor will they replace the miles they used to drive them. Instead, they will throw away the old car and simultaneously choose to drive less overall, simply because the agencies assume that new car prices will be lower than they would be if cars were more efficient. Therefore, the analysis proposes, as new car prices decrease, consumers as a whole will drive fewer miles, and will be subject to less safety risk. Both this improbable result and the erroneous assumptions underlying it are fatally flawed.

The DEIS ignored this obvious contradiction and did its best to make the augural standards show far more VMT than can be justified by assumed higher auto prices and associated lower scrappage. The professional staff at EPA recognized this in a highly critical technical analysis of the NHTSA auto mileage modeling, cited above. On page 1 of the Overview section of that analysis, EPA writes: "the [NHTSA] scrappage model produces vastly unrealistic growth in the overall fleet size [between the augural standards and the rollback], which in turn causes an unrealistic over-inflation of the fatalities estimated for the Augural standards."[196]

In other words, the DEIS modeling shows VMTs under the 2017-2025 standards finalized in 2012 as too high, and VMTs under the NPRM standards as too low. EPA explains:

> The As-Received [NHTSA] model estimates that the Augural standards will reduce the year-over-year annual increase sales of new vehicles by approximately 8,000 vehicles on average between CY2021 and CY2032. However, during the

[194] Some scholars do not think that the rebound effect exists; *see, e.g.*, David B. Goldstein & Ralph Cavanagh, *Energy Efficiency and the "Rebound Effect,"* Natural Resources Defense Council (Feb. 17, 2011), https://www.nrdc.org/experts/david-b-goldstein/energy-efficiency-and-rebound-effect.

[195] *See* 77 Fed. Reg. at 62,716.

[196] EPA, EPA Further Review of CAFE Model & Inputs (June 18, 2018), at 1, attached to Email from William Charmley, EPA, to Chandana Achanta, OMB (June 18, 2018), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2018-0283-0453, Email 5.

> same period, the As-Received model estimates that the used fleet will grow by an average of 512,000 vehicles per year, far exceeding the decrease in new vehicle sales. It's hard to imagine any real-world scenario under which over 60 additional used vehicles are retained for each new vehicle that the sales model predicts will be unsold as a result of the higher new vehicle prices.[197]

When the EPA officials corrected NHTSA's scrappage model and some additional errors, they concluded that NHTSA's figure for auto accident fatalities under the rule finalized in 2012 were much too high, making the "savings" under the proposed new rule illusory. They summarized:

> Compared to the results from the As-Received [NHTSA] version, our EPA-Revised version provides technology costs that are nearly $500 lower and safety outcomes that show the proposed standards are detrimental to safety, rather than beneficial as suggested by the As-Received version. In other words, results with our code revisions indicate that the Proposed standards would result in an increase in the fatality rate of 7 deaths per trillion miles driven, and an average increase of 17 fatalities per year in CYs 2036-2045 relative to the Augural standards.[198]

Misuse of the scrappage factor also misstates vehicle emissions. The PRIA shows that turning off the scrappage price effect under the proposed standards should increase emissions because more people will keep their older cars and therefore consume more fuel (with concomitant upstream and tailpipe emissions).[199] But the DEIS shows reduced tailpipe emissions for most criteria pollutants under various scenarios.

As EPA pointed out, the newly proposed standards will lead to more auto accident deaths, not fewer, and more tailpipe emissions, not less. There is no comprehensible response to EPA's critique in the DEIS – the DEIS modeling just makes no sense.

> As the *Kunzman* court pointed out:
>
> The district court stated that an EIS "must translate technical data into terms that render it an effective disclosure of the environmental impacts of a proposed project to all of its intended readership." The scant case law indicates that an EIS must translate technical data into terms that effectively disclose environmental impacts to its "intended readership," including "interested members of the public," that an EIS should be written "in clear, concise, easily readable form so as to provide a reasonably intelligent non-professional an understanding of the environmental impact," and that an EIS must be "organized and written in language understandable to the general public and at the same time contain sufficient technical and scientific data to alert specialists to particular problems within their expertise."

[197] *Id*. at 5.
[198] *Id*. at 1 (footnote omitted).
[199] *See* PRIA at 1052, Table 8-22.

Or. Envtl. Council v. Kunzman, 817 F.2d at 493-94 (internal citations omitted); *see also California ex rel. Lockyer v. U.S. Forest Serv.*, 465 F. Supp. 2d 942, 950 (N.D. Cal. 2006) (finding Forest Service DEIS "incomprehensible" and so in violation of NEPA). As the comments from William Charmley and common sense show, the current DEIS does not meet minimum standards of intelligibility, should not have been published, and is unlawful.

X. The Conclusion That General Conformity Will Not Be Violated Is Based on Flawed Assumptions and Does Not Meet the "Hard Look" Standard

The Clean Air Act's general conformity requirement is that federal actions must not interfere with a state's ability to implement its State Implementation Plan and meet the National Ambient Air Quality Standards (NAAQS). 42 U.S.C. § 7506(c)(1)-(2); *see also* 40 C.F.R. Part 51, Subpart W, and Part 93, Subpart B. To the extent that a federal action will increase emissions of criteria pollutants, the attainment of the NAAQS standards becomes more difficult. The added pollution is especially problematic in states, like California, that have significant areas now in nonattainment.[200] Because the DEIS' criteria pollutant emission estimates are permeated by fundamental errors that understate the emissions impacts of NHTSA's Proposal, it is highly unlikely that the Proposal would not violate general conformity; at a minimum, NHTSA must take another look at its assumptions and must compare its current conclusion to one not based on its erroneous and unsupported scrappage and rebound models.

As the DEIS states: "Under the General Conformity Rule, a conformity determination is required where a federal action would result in total direct and indirect emissions of a criteria pollutant or precursor originating in nonattainment or maintenance areas equaling or exceeding the rates specified in 40 CFR § 93.153(b)(1) and (2)."[201]

NHTSA's argument that the general conformity rule does not apply because the proposed rules will not directly or indirectly affect air quality is not credible on its face. Perhaps recognizing this, the DEIS purports to analyze whether the regulatory thresholds for invoking the conformity rule apply. The threshold depends on the attainment status of the area, and becomes lower as nonattainment worsens. Where nonattainment is extreme, such as in California's South Coast Basin, excess emissions of NOx or VOCs triggering the need for a conformity analysis can be as little as 10 tons/year.[202] Although Appendix A to the DEIS purports to show that the conformity minimum standards in 40 C.F.R. § 93.153(b)(2) have been met, the figures in Appendix A are based on the analysis badly skewed by the unsupported and result-oriented assumptions as to scrappage, sales, pricing, and the rebound effect discussed above, among others. In light of these errors, the required hard look has not been taken as to whether the Clean Air Act general conformity requirement applies here.

---

[200] *See also* Vehicle GHG Rule Spurs Queries On Pollution Spikes, NAAQS Attainment, InsideEPA, September 17, 2018; Zack Colman, *A Red State Urged Trump to Keep the Climate Car Rules*, E&E News (Aug. 9, 2018), https://www.eenews.net/stories/1060093621.

[201] DEIS, at 4-14.

[202] *See* DEIS, at 4-20 - 4-23 for listing of such areas.

XI. The DEIS Fails to Appropriately Assess and Address Disproportionately Adverse Impacts on Communities of Color and Low-Income Populations

Executive Order ("EO") 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, provides that "[t]o the greatest extent practicable and permitted by law … each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States." Exec. Order No. 12898, § 1-101 (emphasis added). It is the Department of Transportation's policy "to promote the principles of environmental justice (as embodied in the Executive Order) through the incorporation of those principles in all DOT programs, policies, and activities. This will be done by fully considering environmental justice principles throughout planning and decision making processes in the development of programs, policies, and activities, using [among other authorities] the principles of the National Environmental Policy Act of 1969 (NEPA) [and] Title VI of the Civil Rights Act of 1964 (Title VI)." Order 5610.2(a), 77 Fed. Reg. 27,534 (May 10, 2012). As discussed below, in the DEIS NHTSA has failed to meet its mandate to assess and address the environmental justice implications of its proposed action under EO 12898 and Order 5610.2(a) by failing to adequately analyze the environmental justice implications of its proposal to roll back the standards, which would result in disproportionately adverse impacts to these populations.

In the DEIS, NHTSA concludes that the proposed action and alternatives will not have adverse human or environmental effects on people of color and low-income communities, for three reasons.[203] First, even though NHTSA acknowledges that the potential increase in fuel production and consumption as a result of the proposed action and alternatives would result in higher emissions of conventional and toxic air pollutants, the agency concludes that disproportionate impacts on these communities are not foreseeable because "a correlation between proximity to oil refineries and the prevalence of low-income and minority populations has not been established in the scientific literature."[204] Second, the agency claims that the magnitude of the increase in upstream emissions from oil production and distribution from the proposed action, compared to the baseline, is "very minor" and cannot be characterized as disproportionate.[205] Third, the agency claims that downstream emissions would decrease under all action alternatives.[206] As we explain below, each of these claims is incorrect.

The correlation between proximity to oil refineries and the prevalence of low-income people and people of color is well established in the scientific literature. In the DEIS, NHTSA acknowledges that the expected increase in fuel production and consumption associated with the action alternatives could lead to an increase in the emissions of criteria and toxic air pollutants from several sources, including refineries. Nonetheless, the agency misrepresents several academic studies to support its claim that there is only "mixed" and "anecdotal" evidence to

[203] DEIS, at 7-11 - 7-12.
[204] *Id*. at 7-11.
[205] *Id*.
[206] *Id*.

support a correlation between low-income and minority populations and proximity to refineries.[207] NHTSA itself undermines its conclusion when it acknowledges that low-income people and people of color are more exposed to environmental hazards from refinery and roadway pollution[208] and are more vulnerable to the effects of climate change.[209]

Studies on the environmental justice implications of proximity to refineries. NHTSA cites scientific literature to conclude that "disproportionate impacts on minority and low-income populations due to proximity to refineries are not predicted."[210] However, the agency misrepresents and cites these studies out of context. NHTSA relies on the United Church of Christ's *Toxic Wastes and Race at Twenty: 1987 – 2007*[211] and Fischbeck et al's *Using GIS to Explore Environmental Justice Issues: The Case of US Petroleum Refineries*[212] studies to conclude that the evidence is "mixed." It also uses Kay and Katz's *Pollution, Poverty and People of Color: Living with Industry* and O'Rourke and Connolly's *Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption* studies to conclude that the evidence is only "anecdotal."

The *Toxic Wastes and Race at Twenty* report provides concrete evidence that contradicts NHTSA's interpretation of the study regarding the location of refineries and marginalized communities. According to the report, "[m]ore than nine million people (9,222,000) are estimated to live in circular host neighborhoods within 3 kilometers of the nation's 413 commercial hazardous waste facilities [which includes around 140 oil refineries]."[213] The report explains that 5.1 million of the roughly 9 million people living near hazardous waste facilities are people of color.[214] The report also notes that refineries have contaminated the local environment and increased the incidences of lung cancer and respiratory illnesses in tribal communities.[215] Further, the report highlights several case studies of communities of color and low-income communities that were, and still are, disproportionately affected by the pollution from oil refineries.[216] In *Using GIS to Explore Environmental Justice Issues*, the authors explain the limits of their study, which only evaluated a small fraction of the refineries in the U.S:

> "[B]oth the individual maps and the descriptive statistics suggest there are *systematic differences for populations immediately adjacent to these industrial facilities and a control group in the surrounding area*. Our conclusion is certainly that our results warrant further investigation into environmental justice around refineries and other industrial facilities," (emphasis added).[217]

---

[207] *Id*. at 7-10.
[208] PRIA, at 1317-1318, *see also* DEIS, at 7-10.
[209] DEIS, at 7-11.
[210] *Id*. at 7-10.
[211] *Id*.
[212] *Id*.
[213] United Church of Christ, *Toxic Wastes and Race at Twenty: 1987 – 2007* (2007), at X.
[214] *Id*.
[215] *Id*. at 121.
[216] *Id*. at 30; 36; 102-103; 119-121.
[217] Fishbeck et al., *Using GIS to Explore Environmental Justice Issues* (2006), at 17.

Pollution, Poverty and People of Color evaluates the issue of environmental justice and refineries through a case study of Richmond, CA. In the DEIS, NHTSA claims that this article offers mere anecdotal evidence, but, in fact, it presents several quantitative data points that prove the environmental injustice occurring in Richmond. People of color constitute 82.9% of the population in Richmond. In North Richmond, people of color make up 97% of residents and, in 2010, the median household income was $36,875 [compared to the median household income in California of $54,283]. Not only are the residents almost entirely people of color and low-income populations, but they also live close to 5 major oil refineries and dozens of other toxic waste sites and facilities. In *Just Oil?*, the authors combined data from the EPA's Sector Facility Indexing Project and the Toxic Release Inventory. The study found that "56% of people living within 3 miles of refineries in the United States are minorities--almost double the national average."[218] The authors noted that "[a]necdotal evidence from areas surrounding particularly polluting refineries seems to confirm [the quantitative data] that low-income and communities of color are disproportionately affected by these facilities,"[219] a statement that NHTSA cites out of context to support its "anecdotal" evidence claim.[220]

Numerous studies (not cited in the DEIS) highlight the prevalence of people of color and low-income populations in proximity to refineries. The percentage of African Americans living in "refinery counties" is itself indicative of the adverse and disproportionate impact of refineries' location and pollution on these communities. On average, the African American population in refinery counties makes up 17% of the total population--5% above the national African American population.[221] In Tennessee, Louisiana, and Michigan--the states with the highest percentages of African Americans in refinery counties--the African American population in those counties is 54%, 40%, and 40%, respectively.[222] Further, a study evaluating the distribution of health risks from the oil refining process found that the minority share of health risks is 51.3%, approximately twice the population percentage of minorities in the U.S.[223] Additionally, the low-income share of health risk from refining is 19%, which is 6 percentage points above the national low-income population percentage of 12.9%.[224] African Americans, in particular, share 27.9% of the health risks from refineries while only constituting 11.8% of the U.S. population.[225]

Studies on the environmental justice implications of proximity to roadways. Studies have amply documented the correlation between traffic-related air pollution exposure and the increased risk of respiratory and neurological illnesses and other adverse impacts in adults[226] and children.[227]

---

[218] O'Rourke and Connolly, *Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption* (2003), at 606.
[219] *Id.*
[220] DEIS, at 7-10.
[221] Clean Air Task Force and NAACP, *Fumes Across the Fence-Line* (2017), at 22.
[222] *Id.*
[223] Pastor et al., *Justice in the Air* (2009), at 14.
[224] *Id.* at 15.
[225] *Id.*
[226] Bowatte et al., *Traffic-Related Air Pollution Exposure is Associated with Allergic Sensitization, Asthma, and Poor Lung Function in Middle Age* (2016).
[227] Khreis et al., *Exposure to Traffic-Related Air Pollution and Risk of Development of Childhood Asthma: A Systematic Review and Meta-Analysis* (2017).

They have also concluded that low-income populations and populations of color are disproportionately affected by this pollution.[228]

In the Proposed Regulatory Impact Analysis, NHTSA conducted its own evaluation of two national datasets--the U.S. Census Bureau's American Housing Survey for calendar year 2009 and the U.S. Department of Education's database of school locations.[229] The agency concludes that more people of color than white people live and go to school close to roadways. NHTSA also acknowledges this fact in the DEIS, but refrains from concluding that these facts will lead to an adverse and disproportionate impact on low-income people and people of color under the action alternatives.

Rowangould's *A Census of the US Near-Roadway Population: Public Health and Environmental Justice Considerations*, which the agency cites, used demographic data and Average Annual Daily Traffic (AADT) volume data for 2008 from the Highway Performance Monitoring system (HPMS) road network included in the DOT's 2010 National Transportation Atlas Database to determine disparities in residential proximity to highways.[230] The study found that people of color and low-income communities are more likely to live near roads with high volumes of traffic.[231] For roads with the highest volumes of traffic, the non-white population living within 200-300m of the road averages 65.3%.[232]

Not only do people of color and low-income populations live in close proximity to mobile sources of pollution, but children in these communities attend schools within close proximity of these sources, too. In major metropolitan areas, approximately 30% of public schools are located within 300m of a major roadway and have significantly higher populations of students of color.[233] Students of color are therefore exposed to high levels of respiratory risks and other effects of frequent exposure to toxic air pollutants, including, but not limited to, neurobehavioral health problems, DNA damage, autism, and poor academic performance.[234] A report of the United States Center for Disease Control (CDC) confirms these findings and adds that there is a causal relationship between exposure to traffic-related air pollution and morbidity and mortality.[235] People of color and low-income populations share a disproportionate burden of exposure and risk from traffic related air pollution and the health risks from said exposure.[236]

People of color and low-income communities are more vulnerable to the impacts of climate change. In the DEIS, NHTSA acknowledges that people of color and low-income populations

---

[228] Kweon et al., *Proximity of Public Schools to Major Highways and Industrial Facilities, and Students' School Performance and Health Hazards* (2018).
[229] PRIA at 1317.
[230] Rowangould, *A Census of the US Near-Roadway Population: Public Health and Environmental Justice Considerations* (2014), at 59-60.
[231] *Id*. at 61.
[232] *Id*.
[233] Kweon et al., *Proximity of Public Schools to Major Highways and Industrial Facilities, and Students' School Performance and Health Hazards* (2018), at 314-315.
[234] *Id*. at 315-316; 326.
[235] Boehmer et al. *Residential Proximity to Major Highways — United States CDC Report* (2010), at 46.
[236] *Id*.

are disproportionately vulnerable to the effects of climate change.[237] Yet, the agency claims that "[t]he increases in adverse health impacts [for low-income and minority populations] under the action alternatives compared to the No Action Alternative would range from 0.3 percent (under Alternative 8 in 2025) to 5.2 percent (under Alternative 1 in 2050). These increases would be incremental in magnitude and would not be characterized as high."[238] The 0.3% to 5.2% figure (which is a methodological error related to the flawed characterization of fuel use and miles traveled, as we explained above) cannot be considered in isolation; on the contrary, since low-income and minority populations are more vulnerable to the effects of the adverse health impacts, the effects would indeed be *disproportionately* adverse and high.

Among the groups that are particularly vulnerable to the health impacts of climate change are the elderly, children, the sick, the poor, the socially isolated, and people of color.[239] The stresses associated with being part of these populations are exacerbated by climate change, affecting health outcomes, access to food and quality water, and exposure to extreme heat.[240] Increases in extreme heat events in cities in conjunction with the increase in toxic air pollution to which low-income and minority populations are disproportionately exposed are expected to be drivers of increased morbidity and mortality.[241] Non-urban populations are adversely affected by climate change impacts as well. Coastal tribal communities are rapidly having to relocate due to sea-level rise, erosion, and permafrost thaw, all of which are contributing to a loss of cultural heritage, negative health impacts, and further impoverishment.[242]

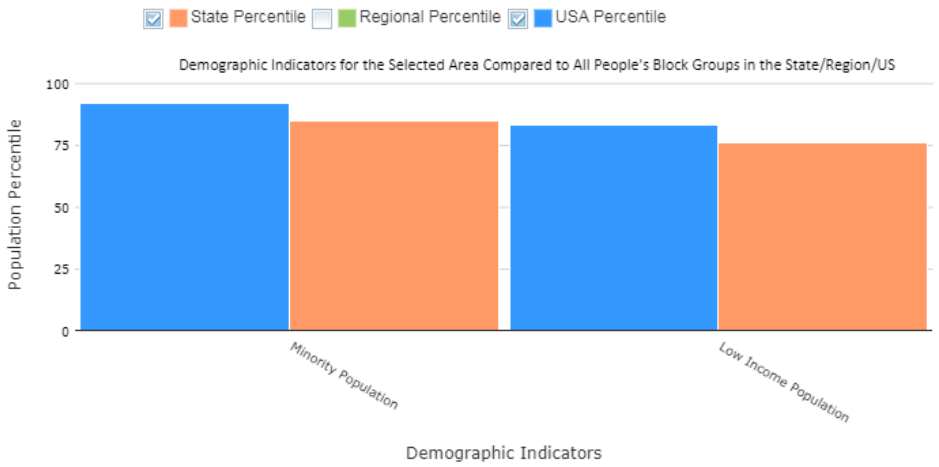
Using EPA's environmental justice mapping tool, EJScreen, we pulled data highlighting the percentile rankings for the populations of people of color, low-income households, and PM2.5 pollution within 3 miles of 10 major refineries in the U.S. Table 1 shows the vexing results of this data collection. Not only do the communities surrounding these refineries rank high in their respective states for population of people of color, but also are amongst the highest percentiles for people of color nationally. Further, particularly in the national context, the surrounding communities have high low-income populations. The surrounding communities are exposed to exorbitant amounts of toxic air pollution, several ranking as high as the 96th percentile nationally. In conjunction, these facts reveal clear trends in the disproportionate impact of refineries on people of color and low-income populations.

[237] DEIS at 7-11.
[238] *Id*. at 7-12.
[239] Global Change Research Program, *Climate Change Impacts in the US* (2014), at 9; *see also* Harlan and Ruddell, *Climate Change and Health in Cities: Impacts of Heat and Air Pollution and Potential Co-Benefits from Mitigation and Adaptation* (2011), at 128.
[240] *Id*. at 14; 36.
[241] Harlan and Ruddell, *Climate Change and Health in Cities: Impacts of Heat and Air Pollution and Potential Co-Benefits from Mitigation and Adaptation* (2011), at 131.
[242] Maldonado et al., *The Impact of Climate Change on Tribal Communities in the US: Displacement, Relocation, and Human Rights* (2013), at 601.

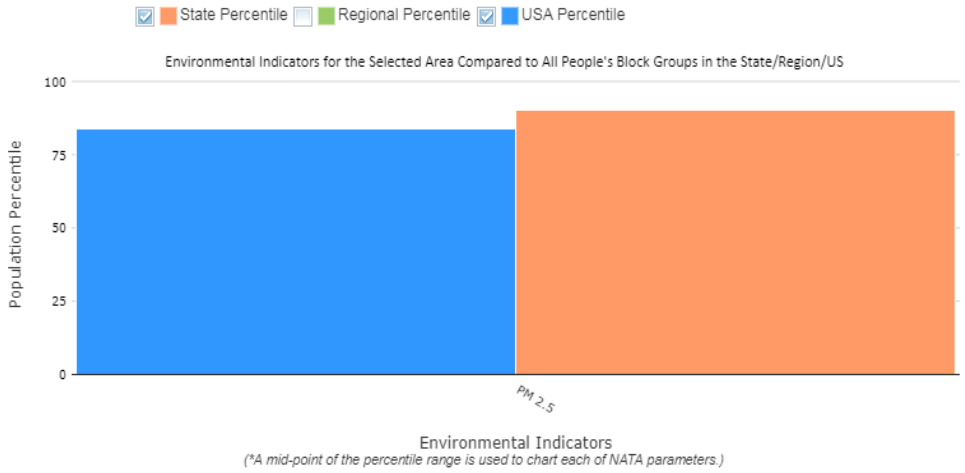
People of Color Population, Low-Income Population, and $PM_{2.5}$ Pollution Percentiles

Plant	City	State	PoC Population Percentile in State	Low-income Population Percentile in State	Nat'l PoC Percentile	Nat'l LI Percentile	State PM 2.5	Nat'l PM 2.5
Marathon	Detroit	MI	85th	86th	70th	86th	88th	79th
Valero	Houston	TX	85th	76th	92nd	83rd	90th	84th
Lyondell Basell	Houston	TX	83rd	74th	91st	81st	89th	82nd
Pasadena	Pasadena	TX	78th	74th	88th	81st	86th	80th
Valero	Wilmington	CA	81st	79th	91st	83rd	76th	96th
Andeavor	Wilmington	CA	82nd	75th	91st	79th	76th	96th
Valero	Wilmington	CA	84th	72nd	92nd	76th	76th	96th
Conoco Phillips	Carson	CA	83rd	63rd	91st	67th	76th	96th
BP	Carson	CA	83rd	67th	91st	70th	77th	96th
Bayway	Linden	NJ	81st	81st	85th	68th	71st	50th

In addition, using EJSCREEN we pulled demographic and pollution burden reports for the communities within 3 miles of two of the largest refineries in the US--the Valero refinery in Houston, Texas, and the Andeavor refinery in Wilmington, CA. First, for the Valero refinery, the surrounding community is in the 92nd percentile nationally and in the 85th percentile of the state of Texas for the population of color. Additionally, the surrounding community is in the 83rd percentile nationally and in the 76th percentile of the state of Texas for the population of low-income residents. Particulate matter, which is a common pollutant emitted from oil refineries known to cause myriad health impacts, is prevalent in this area, too. The community is in the 84th percentile nationally and 90th percentile within Texas for $PM_{2.5}$ pollution. There are two additional refineries within the same 3-mile radius that also contribute to the severe pollution in this area.



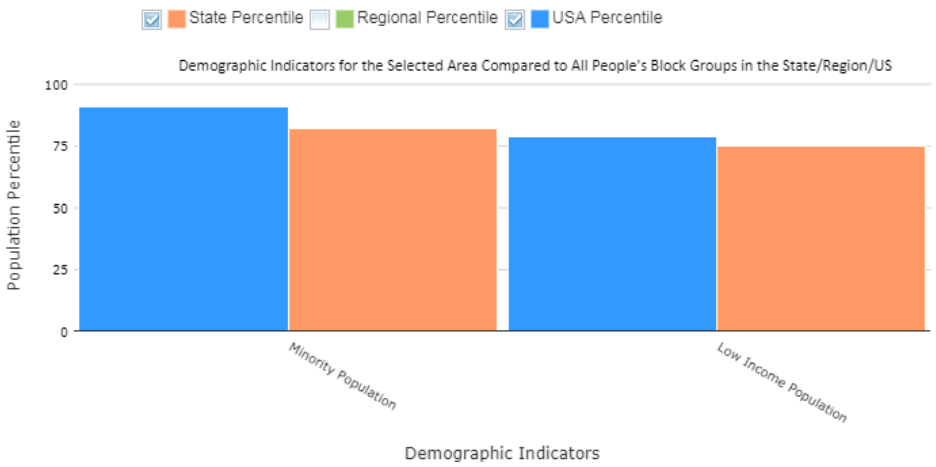
Demographic percentiles for the community within 3 miles of the Valero oil refinery in Houston, TX. Generated using EJScreen.



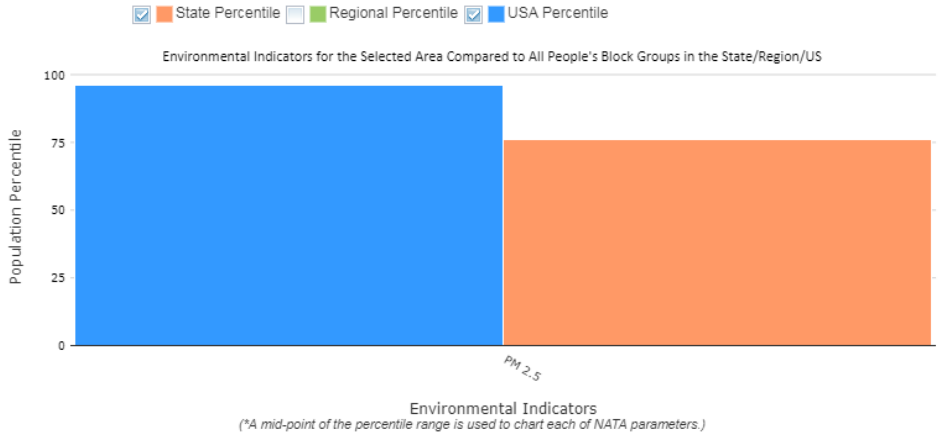
$PM_{2.5}$ pollution percentiles for the community within 3 miles of the Valero oil refinery in Houston, TX. Generated using EJScreen.

Affected population and pollution impacts 3 miles of Andeavor's refinery in Wilmington, CA are similar. The population of people of color in the surrounding community is in the 91st percentile nationally and in the 82nd percentile in California. The low-income population ranks in the 79th percentile nationally and in the 75th percentile in California. As with the Valero refinery, the $PM_{2.5}$ concentrations are alarming, particularly the national percentile ranking. The community surrounding the Andeavor refinery ranks in the 96th percentile nationally and in the 76th percentile in California. There are 4 additional refineries within 3 miles of the Andeavor facility, and the cumulative impact of the pollution from these refineries has resulted in troubling health issues in the community.[243]

[243] Morris, *'The Fear of Dying' Pervades Southern California's Oil-Polluted Enclaves* (2017), available at https://psmag.com/environment/southern-californias-oil-polluted-enclaves



Demographic percentiles for the community within 3 miles of the Andeavor oil refinery in Wilmington, CA. Generated using EJScreen.



$PM_{2.5}$ pollution percentiles for the community within 3 miles of the Andeavor oil refinery in Wilmington, CA Generated using EJSCREEN.

In addition, as explained above, NHTSA's highly dubious modeling assumptions used to derive the Preferred Alternative action and alternatives provide an incorrect evaluation of the environmental and health impacts of the agency's Proposal. Those effects are likely to be much worse than depicted in the DEIS and are likely to affect communities of color and low-income communities to a greater degree. NHTSA has not assessed the adverse effects of its proposed action on communities of color and low-income communities, as required under Executive Order 12898.[244]

In sum, the DEIS' discussion of environmental justice impacts is based on incorrect data and excludes data pertinent to the issues. It reaches incorrect conclusions and must be withdrawn.

[244] Exec. Order No. 12898, § 1-101.

XII. ESA Consultation Is Required

Where an agency action that is non-ministerial – such as the setting of fuel efficiency standards – may adversely affect ESA-listed species, agencies must first comply with the ESA. 16 U.S.C. § 1531 *et seq.* Here, the Proposal would undo the augural standards and freeze the existing MY2017-2025 light duty vehicle greenhouse gas standards at 2020 or 2021 levels, and thus increase pollution that would otherwise be avoided, with predictable detrimental effects on numerous listed species; accordingly, NHTSA must conduct a consultation under Section 7 of the ESA before finalizing its Proposal.

Section 7 requires agencies to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (collectively "the Services") to "insure that any action authorized, funded, or carried out by such agency…is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of [critical] habitat."16 U.S.C § 1536(a)(2). Agency "action" is broadly defined in the ESA's implementing regulations to include "(b) the promulgation of regulations ..." 50 C.F.R. § 402.02. Once the consultation duty is triggered, agencies must use the "best scientific and commercial data available" in completing the consultation process. U.S.C § 1536(a)(2).

Any agency action that may affect a listed species or its critical habitat triggers the consultation requirement. The threshold for a finding of "may affect" is extremely low: "any possible effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement." Interagency Cooperation—Endangered Species Act of 1973, as Amended; Final Rule, 51 Fed. Reg. 19,926, 19,949 (June 3, 1986); U.S. Fish and Wildlife Service and National Marine Fisheries Service, Endangered Species Consultation Handbook (March 1998) at xvi (defining "may affect" as "the appropriate conclusion when a proposed action may pose any effects on listed species ... .").

The Proposal would cause a massive amount of additional greenhouse gas emissions. Under NHTSA's own skewed assumptions, the extra emissions through 2100 caused by its Preferred Alternative will add 7,400 $MMTCO_2$ to the total, an amount that is enormous by any measure; but as discussed above, analysis by the Environmental Defense Fund indicates that the actual emission increases are even larger. The light duty vehicle fleet is the largest contributor of greenhouse gases in the transportation sector, which itself is the largest source of all U.S. greenhouse gas emissions; rules that weaken reduction measures and contribute thousands of additional MMTs cross the "may affect" threshold under any definition. The additional pollution is likely to injure many federally-listed threatened and endangered species that are at risk of extinction due to human-caused climate change. Accordingly, NHTSA's mandate to conduct consultation as required under Section 7 is triggered. NHTSA must meaningfully evaluate the consequences of its action on endangered species before it makes any decision to finalize its Proposal, and in no circumstances may NHTSA jeopardize listed species or destroy their critical habitat.

Some of the joint commenters will supplement these ESA-specific comments with a more detailed description of the adverse impacts of climate change on federally protected species in comments to the NPRM.

XIII. Conclusion

"'NEPA expresses a Congressional determination that procrastination on environmental concerns is no longer acceptable.'" *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d at 1185 (quoting *Found. For N. Am. Wild Sheep v. United States Dep't of Agric.,* 681 F.2d 1172, 1181 (9th Cir. 1982). NHTSA here not only procrastinates, but has chosen to *unravel* environmental protections and go backwards in time. Its flawed analysis gives short thrift to—and worse, in some instances actively misleads the reader about—the environmental and health effects of its Proposal, and its choices and conclusions are arbitrary and capricious. For the reasons set forth herein, the DEIS fails its purpose entirely and must be withdrawn.