June 12, 2018

VIA ELECTRONIC SUBMISSION

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Attn: EPA–HQ–OAR–2014–0827

RE: Supplemental Comment of Environmental Defense Fund on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017)

The Environmental Defense Fund ("EDF") respectfully submits this supplemental comment on the Environmental Protection Agency's ("EPA") Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017) ("Proposed Rule"), addressing provisions contained in the agency's 2016 final rule, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, 81 Fed. Reg. 73,478 (October 25, 2016) ("Phase 2 Standards").

Additional concerns regarding the Proposed Rule and its incomplete underlying analysis further demonstrate the problematic nature of this rulemaking. According to news reports, the White House Office of Management and Budget ("OMB") has properly called on the EPA to perform a regulatory impact analysis ("RIA") for the agency's proposed repeal of pollution limits for glider vehicles.[1] And more recently, the EPA Science Advisory Board ("SAB") voted to review the Proposed Rule, based on a recommendation by the SAB Work Group that the Board should assess "the adequacy of the supporting science" in the proposal.[2] These actions further underscore that EPA must withdraw this deeply flawed rulemaking.

[1] Attachments 1, 2, & 3: Evan Halper, *EPA used disavowed research to justify putting dirtier trucks on the road*, LA TIMES (May 29, 2018), http://www.latimes.com/politics/la-na-pol-pruitt-polluting-trucks-20180528-story.html; Inside EPA, *OMB said to rebuff final EPA glider plan due to lack of RIA* (May 2, 2018), https://insideepa.com/daily-feed/omb-said-rebuff-final-epa-glider-plan-due-lack-ria; Michael Bastasch, *SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays*, The Daily Caller (May 2, 2018), http://dailycaller.com/2018/05/02/epa-obama-era-regulation-repeal-glider-kits/; *see also* Maxine Joselow, *Lawmaker urges White House to rush EPA glider-rule rollback*, E&E News (May 22, 2018), https://www.eenews.net/greenwire/stories/1060082383/.

[2] Memorandum from Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018),

I. OMB Reportedly Highlights Need for a Regulatory Impact Analysis

For every "significant regulatory action," Executive Order 12,866 requires EPA to provide OMB's Office of Information and Regulatory Affairs ("OIRA") with a cost-benefit analysis.[3] E.O. 12,866 further requires EPA to make this information available to the public in an accessible manner.[4] Last year, in a memorandum addressing Executive Order 13,771, OIRA reaffirmed that agencies must continue to assess and consider costs and benefits of new regulatory actions and comply with all existing requirements of E.O. 12,866.[5]

In its Proposed Rule, EPA identified this rulemaking as a "significant regulatory action" for the purposes of Executive Order 12,866.[6] Thus, to comply with the executive order, EPA was required to provide a cost-benefit analysis to OMB, such as by conducting an RIA for the proposal.

OMB is correct to request that EPA perform a regulatory impact analysis—among other shortcomings, the rule is not adequately supported because it was not accompanied or informed by this required analysis. As pointed out in our comment on the proposal—submitted jointly with the Environmental Law & Policy Center and WE ACT for Environmental Justice—EPA failed to include a cost-benefit analysis with the Proposed Rule.[7] Failing to address this requirement is just one of the numerous procedural inadequacies and legal errors that render EPA's proposal unlawful.[8]

Furthermore, even if EPA ultimately does produce an RIA (which would not cure the other deficiencies with the Rule) the agency would have to re-propose the rule to allow for public comment on the new information.[9] In addition to the requirements of E.O. 12,866, EPA has an obligation under the Administrative Procedure Act "to make its views known to the public in a

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https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf.

[3] Executive Order 12,866 § 6(a)(3)(B), 58 Fed. Reg. 57,735 (Sept. 30, 1993).

[4] *Id.* § 6(a)(3)(E).

[5] Memorandum, "Guidance Implementing Executive Order 13771, Titled 'Reducing Regulation and Controlling Regulatory Costs,'" Dominic J. Mancini, Acting Administrator, Office of Information and Regulatory Affair, Executive Office of the President, Office of Management and Budget (Apr. 5, 2017).

[6] Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442, 53,447 (Nov. 16, 2017).

[7] Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 5, 2018), at Part VII(e), available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861.

[8] *See id.*

[9] *Kennecott Corp. v. EPA.*, 684 F.2d 1007, 1019–20 (D.C. Cir. 1982) (where data of central relevance to the rulemaking was not placed in the docket until shortly before promulgation, "EPA's refusal to convene a new round of public comment proceedings constitute[ed] reversible error under s 307(d)(9)"); *Union Oil Co. of California v. U.S. E.P.A.*, 821 F.2d 678, 682-83 (D.C. Cir. 1987) (The "docket must provide the entire basis for the final rule . . . failure to docket data and analysis relied upon in formulating a final rule violates § 307(d)(6)(C) of the Clean Air Act").

concrete and focused form so as to make criticism or formulation of alternatives possible."[10] Congress, in enacting Section 307(d) of the Clean Air Act, affirmatively heightened this notice obligation to specifically require that all information and factual data supporting a Clean Air Act regulatory action be included in a rulemaking docket at the time of proposal.[11]

II. SAB Votes to Review the Proposed Rule

EPA's Science Advisory Board voted recently in favor of full SAB review of this action, stemming from an SAB Work Group memo that identified a number of concerns with the proceeding.[12]

A May 18, 2018 memorandum from the Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science identified the Proposed Rule as an action meriting examination by the SAB due to concerns about its inadequate scientific support. Notably, the Work Group memo observed that EPA itself disclosed that there is "uncertainty about what science, if any, would support" this action.[13] The Work Group memo explained the basis for its recommendation, stating that the Proposed Rule "lacks transparency regarding the sources of and basis for data regarding costs, emissions, life cycle implications, and safety," and that "EPA failed to take into account its own study . . . that shows that glider truck emissions can be substantially higher than those from conventionally manufactured trucks."[14] The Work Group also identified a number of key questions that should be addressed in a full review of the proposal, including:

- "What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?"
- "What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?"[15]

At the Science Advisory Board's meeting on May 31, 2018, the full board followed the recommendation of the Work Group and voted in favor of SAB review of EPA's Proposed Rule.[16] SAB's scrutiny of the proposal underscores the need for further study and critical

[10] *Home Box Office v. FCC*, 567 F.2d 9, 36 (D.C. Cir. 1977).
[11] 42 U.S.C. § 7607(d).
[12] Attachment 4: Memorandum from Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf.
[13] *Id.* at 5, B-37.
[14] *Id.* at B-38.
[15] *Id.* at B-37—B-38.
[16] Attachment 5: Eric Rosten, *EPA Science Board Rebukes Pruitt's Use of Science to Deregulate*, Bloomberg: Politics (June 1, 2018), https://www.bloomberg.com/news/articles/2018-05-31/epa-science-board-rebukes-pruitt-s-

examination of the technical and scientific aspects of the Agency's action. Given these concerns, Administrator Pruitt should withdraw this flawed proposal or at least defer further action until after full SAB review.

Additionally, many experts testified before the SAB at its recent meeting, providing evidence of the high level of concern in the health and scientific communities over the Proposed Rule. Copies of the relevant testimonies are attached to this comment.[17]

III. Conclusion

These developments further demonstrate that Administrator Pruitt must withdraw this deeply flawed Proposed Rule, or at least delay any further proceedings until after the SAB completes its review and then allow for public comment on any new information produced as a result of that review or included in an EPA RIA.[18]

Sincerely,

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Martha Roberts

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use-of-science-to-deregulate; *see also* U.S. EPA Science Advisory Board, *Science Advisory Board Draft Meeting Agenda, May 31 – June 1, 2018*, EPA Science Advisory Board (May 25, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/7D239353BCECF85B852582600058B716/$File/draft_SAB_meeting_agenda_5_25_18.pdf.

[17] *See* Attachments 6-11.

[18] Further concerns with the Proposed Rule are articulated in our past comments: Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 10, 2018), https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861; Supplemental Comment of EDF on EPA's Proposed Rule (Feb. 14, 2018), https://www.edf.org/sites/default/files/content/EDF%20Supplemental%20Comment%20on%20Gliders%20Proposed%20Repeal%202.14.2018.pdf; Second Supplemental Comment of EDF on EPA's Proposed Rule (Feb. 27, 2018), https://www.edf.org/sites/default/files/content/EDF%20Second%20Supplemental%20Comment%20re%20TTU%20Study%202.27.18%20Final2.pdf; Third Supplemental Comment of EDF on EPA's Proposed Rule (Mar. 11, 2018), https://www.edf.org/sites/default/files/content/EDF%20Third%20Supplemental%20Comment%20re%20TTU%20Study%203.11.18.pdf.

Attachments

Sources Cited in Footnotes

1. Article: Evan Halper, *EPA used disavowed research to justify putting dirtier trucks on the road*, LA Times (May 29, 2018), http://www.latimes.com/politics/la-na-pol-pruitt-polluting-trucks-20180528-story.html p7
2. Article: Inside EPA, *OMB said to rebuff final EPA glider plan due to lack of RIA* (May 2, 2018), https://insideepa.com/daily-feed/omb-said-rebuff-final-epa-glider-plan-due-lack-ria p15
3. Article: Michael Bastasch, *SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays*, The Daily Caller (May 2, 2018), http://dailycaller.com/2018/05/02/epa-obama-era-regulation-repeal-glider-kits/ p16
4. Memorandum: From Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf. p20
5. Article: Eric Rosten, *EPA Science Board Rebukes Pruitt's Use of Science to Deregulate*, Bloomberg: Politics (June 1, 2018), https://www.bloomberg.com/news/articles/2018-05-31/epa-science-board-rebukes-pruitt-s-use-of-science-to-deregulate p100

Testimony before the EPA Science Advisory Board

6. Dr. Dave Cooke, Sr. Vehicles Analyst, Union of Concerned Scientists—May 31, 2018 p103
7. Glen Kedzie, Vice President, Energy & Environmental Counsel for the American Trucking Associations (May 31, 2018) p108
8. Statement of Amit Narang, Regulatory Policy Advocate, Public Citizen (May 31, 2018) p110
9. Michael Walsh, Independent Consultant (May 31, 2018) p112
10. Genna Reed, Lead Science and Policy Analyst, Union of Concerned Scientists (May 31, 2018) p114
11. Testimony of Rachel Muncrief and John German on behalf of the International Council on Clean Transportation (ICCT) (May 31, 2018) p117

Attachments 1-5
Sources Cited in Footnotes

POLITICS

EPA used disavowed research to justify putting dirtier trucks on the road

By EVAN HALPER
MAY 29, 2018 | WASHINGTON

EPA Administrator Scott Pruitt. (Pablo Martinez Monsivais / Associated Press)

At a time when acts of defiance against the Trump administration are routine in Sacramento, the rebuke that breezed through the California Assembly this month still came as a jolt. Even Trump loyalists in the chamber joined in.

The message to the administration was clear: Forget about your plan to unleash on freeways a class of rebuilt trucks that spew as much as 400 times the choking soot that conventional new big rigs do. Getting caught behind the wheel of one of these mega-polluters in California would carry a punishing $25,000 minimum fine under the measure that lawmakers passed 73 to 0. It had the support of 25 Republicans.

"This was a reaction," said Chris Shimoda, vice president of government affairs for the California Trucking Assn., which sponsored the legislation. "A lot of people have made the investments to clean up their trucks. They don't want to see an obvious loophole that allows others to be gross polluters and undercut them."

Equally strong reactions are rippling across the country in response to the Trump administration's push to boost a cottage industry eager to sell trucks that run on rebuilt diesel engines. The trucks look new from the outside, but are equipped with repurposed motors that, according to the EPA's own experts, threaten to produce enough soot each year to cause up to 1,600 premature deaths.

Trump's EPA has tried to justify the move by citing a privately funded study that claimed the trucks did not cause more pollution, but even the university that conducted the research has now cast doubt on the findings.

The latest from Washington »

Air regulators loathe the proposal to allow thousands more of the trucks on the roads. Most of the trucking industry feels the same. Even the White House budget office and several conservative allies of the administration are balking.

"We urge you to consider the adverse impact on the economy," said a letter that the Environmental Protection Agency recently disclosed from the Republican senators of Indiana, West Virginia and North Carolina. They warned EPA chief Scott Pruitt that the plan is ill-advised and disruptive to industry. Ten House Republicans concurred in their own letter, which warned the proposal is a potential job-killer. "We respectfully ask that you carefully consider the negative impacts," the GOP lawmakers wrote.

Yet the EPA is undeterred. Its crusade to lift an Obama-era ban on these heavily polluting vehicles known as "gliders" perseveres, largely at the behest of a small group of activists on the right and one generous political donor, Tennessee businessman Tommy Fitzgerald. Fitzgerald, who has met privately with Pruitt and who held a campaign event in 2016 for Trump at one of his facilities, says restricting the sale of the trucks and the kits to build them threatens 22,000 jobs.

Pruitt says the restrictions on the trucks were a misuse of Clean Air Act regulations.

In announcing the rollback, Pruitt's agency ignored its own findings about how much environmental damage the vehicles cause. Instead, it cited a new study from Tennessee Tech University that concluded, astonishingly, that the glider trucks were no more harmful to air quality than trucks with new engines. That study was bankrolled by Fitzgerald's business.

The results of the study came as a shock to experts at the EPA, and also to the engineering faculty at Tennessee Tech.

"Tennessee Tech has skills in some areas, but air pollution is an area we have never worked in," said David Huddleston, an engineering professor at the university. "I thought, who on campus knows enough to actually even offer an opinion on that? We have one guy who has some expertise in emissions, but he wasn't even involved in this."

The faculty would soon learn the study was run by a university vice president who lacked any graduate level engineering training, and that it was conducted at a Fitzgerald-owned facility. Tennessee Tech's president and Rep. Diane Black (R-Tenn.) — who has accepted more than $200,000 in political donations from Fitzgerald, his companies and top employees — had lobbied Pruitt to embrace the research.

The Tennessee study quickly came under suspicion. Notes from discussions between EPA scientists and its authors revealed major flaws. The EPA scientists then updated their own tests of glider vehicles, which confirmed the trucks are substantially dirtier than newly manufactured trucks.

The head of Tennessee Tech's engineering department dismissed the study's key conclusion as a "far-fetched, scientifically implausible claim" by a research team that included "no qualified, credentialed engineer." The faculty senate passed a resolution demanding the university revoke its support for the study and launch an investigation.

By late February, the university asked the EPA to stop using or referring to the study, pending its investigation. That investigation continues.

"The university takes the allegations of research misconduct seriously," the school said in a statement to the Los Angeles Times. "Tennessee Tech is still in the process of following its internal procedures related to such matters."

Despite Pruitt's earlier acknowledgment that the study factored into his decision to revisit the glider vehicle restrictions, an EPA spokesperson said in an email last week that "it played no role" in the action the EPA is now taking.

Two former EPA chiefs are skeptical. Christine Todd Whitman, who led the agency under George W. Bush, and Carol Browner, who led it under Bill Clinton, pointed out in a March letter to Pruitt that the industry's petition that prompted the EPA to act on glider trucks relied heavily on the now disavowed study. They urged him to withdraw the proposal.

Fitzgerald's company is refusing to publicly release the full study, which it owns under its arrangement with the school. But it has cast itself as the victim.

"We did not expect to receive work product that some have characterized as 'flawed and shoddy' or 'far-fetched and scientifically implausible,' and we certainly did not expect to be defamed by faculty members and administrators from the very institution that conducted the research," a company lawyer wrote to university officials earlier this year.

The company later demanded that four faculty members who have spoken out against the research and the company's involvement in it turn over any emails they wrote about the matter.

"It's a mess," said Huddleston. "All these professors are trying to do is the right thing. And now they have had to go out and hire lawyers to protect themselves. It's sad."

Rep. Black recently told Nashville Public Radio that she had no regrets about using the study to try to help the glider business. She said glider manufacturers are in a noble "David and Goliath" battle with much larger trucking interests seeking to crush them.

But even some at the White House are chafing. Its budget office directed the EPA to undertake an extensive economic review that will hold things up for weeks and could reveal more legal vulnerabilities. The free market think tank FreedomWorks has, in turn, launched a campaign to pressure the White House to approve the EPA's plan promptly, without requiring the economic analysis.

It remains to be seen whether Pruitt will prevail. But if he succeeds, glider truck drivers could find themselves entering California at their own risk. Backers of the $25,000 penalties that the Assembly approved said they would expect to see them enforced, regardless of how the EPA proceeds. The bill appears likely to pass the state Senate and be signed into law.

Asked how it would confront that challenge, the agency demurred. "EPA has not yet taken a final action," said the email from its press office, "and will not comment on hypothetical outcomes before the process is complete."

More stories from Evan Halper »

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Evan Halper

Evan Halper writes about a broad range of policy issues out of Washington D.C., with particular emphasis on how Washington regulates, agitates and very often miscalculates in its dealings with California. Before heading east, he was the Los Angeles Times bureau chief in Sacramento, where he spent a decade untangling California's epic budget mess and political dysfunction.

Inside EPA: OMB said to rebuff final EPA glider plan due to lack of RIA

May 02, 2018

The White House Office of Management & Budget (OMB) is rejecting an EPA draft final rule that would scrap production limits of “glider” trucks that do not meet modern emissions standards, on the grounds that EPA had yet to craft a regulatory impact analysis (RIA) detailing the pollution impacts of the plan, according to a news report.

The report in the conservative ***Daily Caller*** is the latest indication that federal officials have been **working behind the scenes** to shore up the legal and technical basis for the controversial plan.

But it also indicates more specifically that the agency has continued to skip a routine regulatory step in an effort to quickly get a final plan out the door. EPA did not issue an RIA in tandem with its proposed repeal of the glider rules, an analysis that would have required a detailed look at the costs that would result from increased pollution from such trucks.

The report quotes three sources indicating OMB rejected the glider repeal before it was formally presented to the office, with OMB telling EPA to do a RIA.

The report also suggests that agency staff had initially “slow walked” the move to finalize the controversial plan, with a source calling this surprising given the EPA effort to justify its plan based on legal arguments that the agency never had the authority to regulate the gliders as “new” vehicles in the first place.

But the proposal has also spawned massive blow back from much of the trucking sector and **increasingly Hill Republicans**, not only on legal but also on substantive grounds -- with critics arguing it could result in significant pollution increases and undercut industry investments in trucks that meet modern pollution standards.

The report states that the need to conduct an RIA could delay the EPA draft final rule by roughly a month.

ENERGY

EPA Administrator Scott Pruitt testifies before the House Appropriations Committee Subcommittee on Interior, Environment, and Related Agencies Subcommittee on Capitol Hill in Washington, U.S., April 26, 2018. REUTERS/Aaron [illegible] [illegible]

SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays

MICHAEL BASTASCH

10:40 AM 05/02/2018

(http://dailycaller.com/author/michaelb/)

27

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The Environmental Protection Agency's (EPA) repeal of Obama-era regulations that could put an entire industry out of business has been slowed by bureaucratic delays and an unexpected request from the White House.

EPA has been working for months to finalize its repeal of Obama administration regulations on glider kits that critics say would have put an entire industry that sells refurbished truck engines out of business in the coming years.

Initially, EPA's effort to finalize the repeal of glider kit regulations was slow-walked by career officials at the agency, sources familiar with the matter told The Daily Caller News Foundation. But when EPA was finally ready to send the finalized repeal to the White House Office of Management and Budget (OMB), it was rejected late last week, three sources told TheDCNF. OMB did not respond to a request for comment.

OMB rejected EPA's glider kit rule repeal before the agency officially sent it over for review, one source said. OMB said EPA needed to conduct a regulatory impact analysis, three sources said.

The rejection was somewhat shocking since the rule is being rejected on legal grounds, rather than economic ones, sources said. EPA will likely conduct a regulatory impact analysis, but that could set back finalizing the rule a month or so, one source said.

The Obama administration issued regulations to ban the sale of glider kits, which are new truck bodies fitted with refurbished engines. The engines may generate more pollutants, but they are cheaper than buying new trucks with new engines.

Glider kits became an incredibly important source of trucks for small companies unable to afford newer engines, especially in the wake of Clinton administration trucking regulations that went into full effect in 2010.

Environmentalists and big automakers worked with the Obama administration to clamp down on the glider industry. The Obama EPA issued regulations to phase out glider kits over a matter of years.

The Obama EPA did this by using a provision of the Clean Air Act allowing regulations on "new motor vehicles." The EPA simply reclassified the refurbished glider kit engines as new motor vehicles. EPA also justified its regulations on glider kits under its authority to regulate greenhouse gas emissions.

The Tennessee-based Fitzgerald Glider Kits, the largest glider kit producer, petitioned EPA in June 2017 to rescind the regulation, which would kill its industry. Administrator Scott Pruitt granted the petition and issued (https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider) a proposed rule in November.

CEO Tommy Fitzgerald built a $700 million company, supplying trucks that are about 25 percent cheaper than competitors — major automakers, like Volvo, trying to sell newer, more expensive trucks.

"The new truck industry, led by foreign-owned Volvo Trucks (whose largest shareholder is a Chinese company), lobbied the Obama EPA to ensnare us in an ongoing rulemaking to establish emissions standards for new trucks," Fitzgerald wrote in an op-ed (http://dailycaller.com/2018/04/19/trump-epa-is-helping-real-americans/) for The Daily Caller.

"Making our rebuilt engines meet new truck standards would have killed the industry, and the glider haters knew it," Fitzgerald wrote.

In the months since, the auto industry has worked to squash the rule's repeal on the grounds it would jeopardize its investments in newer, more expensive engines.

The New York Times noted (https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html) that "major truck makers like Volvo and Navistar; fleet owners like the United Parcel Service; lobbying powerhouses like the National Association of Manufacturers" oppose repealing the glider kit rule.

Republican lawmakers have also come out against repealing the glider rule, signing a letter (https://twitter.com/EricLiptonNYT/status/987084465741627398) to EPA urging them to abandon their repeal effort. However, many of the letter signatories have gotten donations

(https://junkscience.com/2018/04/nytimes-investigative-reporter-eric-lipton-not-so-investigative-on-glider-trucks/) from Volvo and other companies or groups opposed to glider kits.

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Tags: Energy (http://dailycaller.com/buzz/energy/), Environmental Protection Agency (http://dailycaller.com/buzz/environmental-protection-agency/), Scott Pruitt (http://dailycaller.com/buzz/scott-pruitt/), Tom Fitzgerald (http://dailycaller.com/buzz/tom-fitzgerald/)

MEMORANDUM

TO: Members of the Chartered SAB and SAB Liaisons

FROM: Alison Cullen, Chair, SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science */signed/*

DATE: May 18, 2018

SUBJECT: Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Agency Actions and their Supporting Science in the Fall 2017 Regulatory Agenda

The Chartered SAB will discuss whether to review the adequacy of the science supporting planned regulatory actions identified by the EPA as major actions in the Fall 2017 semi-annual regulatory agenda at its May 31, 2018 meeting. To support this discussion a SAB Work Group was charged with identifying actions for further consideration by the Chartered SAB. This memorandum provides background on this activity, a short description of the process for identifying actions for SAB consideration, a summary of the process used by the Work Group and Work Group recommendations on the planned actions.

Background

The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA) requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment, together with relevant scientific and technical information on which the proposed action is based. The SAB may then make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed action.

EPA's current process (Attachment A) is to provide the SAB with information about the publication of the semi-annual regulatory agenda and to provide descriptions of major planned actions that are not yet proposed. Identifying actions that are not yet proposed provides the SAB and the Agency with sufficient time to provide a review. The agency process for submitting information on planned actions includes any major actions whether or not they are listed in the Regulatory Agenda. These descriptions provide available information regarding the science informing agency actions. This process for engaging the SAB supplements the EPA's process for program and regional offices to request science advice from the SAB.

Summary of the Process Used by the SAB Work Group

The SAB Work Group followed the process adopted by the Chartered SAB in 2013[1] to initiate its review of major planned actions identified in the Unified Regulatory Agenda by EPA. The current SAB review began when the EPA Office of Policy informed the SAB Staff Office that the Fall 2017 Unified (Regulatory) Agenda and Regulatory Plan had been published on December 14, 2017. This semi-annual regulatory agenda is available at https://www.reginfo.gov/public/do/eAgendaHistory. This SAB Work Group was formed in January 2018 and includes SAB members with broad expertise in scientific and

[1] Available at http://yosemite.epa.gov/sab/sabproduct.nsf/WebSABSO/ProcScreen2017/$File/SABProtocol2017.pdf

technological issues related to the proposed actions. The Work Group consists of Drs. Alison Cullen (chair), Robert Blanz, Otto Doering, H. Christopher Frey, John Graham, Merle Lindstrom, and Jay Turner, and Messrs. Robert Merritt and Richard Poirot.

The Work Group considered actions in the Fall 2017 semi-annual regulatory agenda that were identified by the EPA as "major actions." The Work Group considered several factors when assessing each proposed major action, i.e., whether the action:

- already had a planned review by the SAB or some other high level external peer review [e.g., National Academy of Sciences, Clean Air Scientific Advisory Committee, Federal Insecticide, Fungicide and Rodenticide (FIFRA) Scientific Advisory Panel];
- was primarily administrative (i.e., involved reporting or record keeping);
- was an extension of an existing initiative;
- was characterized by EPA as an influential scientific or technical work product having a major impact, or involved precedential, novel, and/or controversial issues;
- considered scientific approaches new to the agency;
- addressed an area of substantial uncertainty;
- involved major environmental risks;
- was related to an emerging environmental issue; or
- exhibited a long-term outlook.

On March 30, 2018, the Work Group received information and short descriptions from the EPA Program Offices on the major planned actions that are listed in the Fall 2017 semi-annual regulatory agenda but not yet proposed. Work Group members concurred on the recommendations presented in this memorandum after discussions on April 20, 2018, May 3, 2018 and subsequently via email. A compiled set of the EPA descriptions of the actions and the Work Group recommendations are provided in Attachment B. The Work Group submitted requests for additional information on several planned actions and held a fact-finding teleconference on April 20, 2018. A summary of the teleconference is provided in Attachment C.

Work Group Recommendations Regarding Planned EPA Actions of Interest to the SAB

The SAB Work Group based the recommendations below on information received from the EPA and the Group's independent research. Of the nine major planned actions considered, the Work Group recommends that two of the actions merit further SAB consideration, and the underpinnings of a third action merit further SAB consideration. A brief summary of the Work Group findings is provided and further information on each action is available in Attachment B.

Table 1 identifies the nine planned actions reviewed and summarizes the SAB Work Group's recommendations. Attachment B provides the EPA's descriptions of the planned actions, and the recommendation for each of the planned actions with the supporting rationales.

Table 1: Summary of Proposed Actions that the SAB Work Group Considered for Additional SAB Comment on the Supporting Science		
RIN[1]	**Planned Action Title**	**Workgroup Recommendation**
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	Defer SAB consideration of the planned action until more information is available
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	Does not merit further SAB review
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	Merits SAB Review
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	Does not merit further SAB review
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	Does not merit further SAB review
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	Merits SAB Review
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	Does not merit further SAB review
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	Does not merit further SAB review
2060-AT31	Fuels Regulation Modernization - Phase 1	Does not merit further SAB review

[1]The Regulatory Identification Number provides a hyperlink to the Office of Management and Budget's webpage and information on the planned action provided in the Unified Regulatory Agenda on the OMB website http://www.reginfo.gov/

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12): The SAB Work Group recommends that the SAB review the scientific and technical basis for this planned action when more information is available and at that time determine if it is appropriate to provide advice and comment to the Administrator. From information the EPA staff provided, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science at this time. The current language indicates that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. Depending upon how the action proceeds, it may ultimately involve precedential issues and become an influential scientific or technical work product. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units (RIN 2060-AT67): This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017. Specifically, the SAB is advised to consider reviewing: i) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; ii) RIA calculations of climate change benefits on a US-only basis rather than a global scale; and iii) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the "social cost of carbon" (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77): The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions to the EPA. EPA staff noted that the Work Group identified analyses that "could be considered to inform the forthcoming Notice of Proposed Rule Making (NPRM)" and that they would assess these issues as they develop the proposed rule. EPA staff responded that the schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards has not yet been announced. The Work Group notes that EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation (MTE), including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. Key questions to address in such an SAB review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected. The Work Group provides a detailed rationale in Attachment B and the fact finding effort is summarized in Attachment C.

Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68) and *Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)*: These actions do not merit further SAB consideration. These actions undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Panels. CASAC is a FACA committee and has statutory mandate under the Clean Air Act to advise the Administrator regarding the National Ambient Air Quality Standards(NAAQS). The SOx Review Panel and the Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur were specifically constituted, in terms of independent scientific expertise, to review the proposed actions, respectively. CASAC completed its review of the Sulfur Oxides NAAQS on April 30, 2018.

National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74): The Work Group finds that this action does not merit further SAB consideration. While the details of each Residual Risk and Technology Review (RTR) are unique to the sources and pollutants being evaluated, the general approaches and methodologies employed in EPA RTRs have become standardized, have been employed in numerous previous RTRs, and have been subject to multiple peer reviews over the past 17 years, most recently in 2009. As EPA's RTR methodologies are refined and revised over time, there is a need for periodic peer reviews of the changing methods. The SAB is currently conducting a review of recent revisions to the screening methodologies used to support RTR reviews. A final SAB report on this review is anticipated in 2018. Given the extensive past and ongoing peer reviews that have been conducted on RTR methodologies, the Work Group recommends that no additional SAB review is warranted for these specific RTRs at this time.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79): The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA stated that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?

- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

The Work Group recommends that the SAB conduct a review of the technical and scientific issues pertaining to this proposed action. In developing this recommendation, the Work Group considered the following: i) the proposed rule is in part based on a study that has been withdrawn by its authoring institution, ii) pertinent technical content is omitted, iii) the rule lacks clear attribution of the information that EPA cites, iv) the rule implies a potential rollback of reductions in emissions of pollutants that are harmful to public health, and v) there are myriad technical issues related to life cycle emissions.

Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements (RIN 2070-AK43): This action does not merit any further SAB consideration. Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31): The planned action does not merit further review by the SAB. This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones". No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Work Group Recommendations Regarding Improvements to the Process for Identifying EPA Planned Actions for SAB Consideration

The Work Group thanks the EPA for providing information for consideration but emphasizes that the SAB requires more complete and timely information from the agency to make recommendations and decisions regarding the science supporting planned actions. The Work Group is noticing a trend of less information to describe the planned actions being made available over the last three regulatory review cycles. In reviewing the Fall 2017 Regulatory Agenda, there were several cases where key information about the planned action, supporting science and peer review were provided only after specific Work Group requests.

To improve the process for future review of planned actions, the SAB Work Group strongly recommends that EPA enhance descriptions of future planned actions by providing more description of the scientific and technological basis for actions and specific information on the peer review associated with the scientific basis for actions. For both the Spring and Fall 2017 reviews the Work Group finds that the responses to fact finding questions were not comprehensive and participation in the scheduled teleconference was limited. EPA should provide such information in the initial descriptions provided to the Work Group. The Work Group requests improved agency responsiveness for efficiency in the fact finding step.

The Work Group is aware that a recently proposed action, Strengthening Transparency in Regulatory Science (RIN 2080-AA14), was not included in the Fall 2017, nor identified as a major planned action by the EPA. The Work Group also notes that the EPA process to meet ERDDAA requirements, described in Attachment A of this memorandum, directs EPA program offices to include major actions that are not in the regulatory agenda and to provide descriptions of those actions. The Work Group finds that RIN 2080-AA14 is a major action and merits further review by the SAB. The Work Group provided a separate memorandum on this action. The proposed rule deals with issues of scientific practice and proposes constraints that the agency may apply to the use of scientific studies in particular contexts. As such, this rule deals with myriad scientific issues about which the Agency should seek expert advice from the Science Advisory Board.

Effective SAB evaluation of planned actions requires the agency to characterize:

- All relevant key information associated with the planned action;

- The science supporting the regulatory action. Clearly describe the science supporting the regulatory action and whether it is influential scientific information or highly influential scientific information. If there is new science to be used, provide a description of what is being developed. If the agency is relying on existing science, provide a short description.

- The nature of planned or completed peer review. To the extent possible, provide information about the type of peer review, the charge questions provided to the reviewers, how relevant peer review comments were integrated into the planned action, and information about the qualifications of the reviewer(s).

The SAB made several of these recommendations in previous reviews, as well as noting a trend toward less information being made available for actions listed in the Regulatory Agenda. We request that the chartered SAB highlight to the Administrator the need for the Agency to provide more complete information to support future SAB decisions about the adequacy of the science supporting actions in future regulatory agendas.

Attachments

Attachment A: Implementation Process for Identifying EPA Planned Actions for SAB Consideration
Attachment B: SAB Work Group Recommendations on Major EPA Planned Actions Identified in the Fall 2017 Semi-Annual Regulatory Agenda.
Attachment C: Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda

Attachment A
Implementation Process for Identifying EPA Planned Actions for SAB Consideration

Background on the EPA Process

- The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA, see p. 4)
  - Requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment together with relevant scientific and technical information in the possession of the agency on which the proposed action is based.
  - States that the Board may make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed actions.
- In January 2012, Office of Policy Associate Administrator Michael Goo issued a memorandum to strengthen coordination with the SAB by providing the Board with information about *proposed* agency actions. (see page p. 9)
- In February 2012, SAB Staff developed an initial proposal to provide the SAB with information about *proposed* agency actions.
  - EPA Senior Leadership concluded that providing information to the SAB for consideration at the proposal stage was *too late* in the process for meaningful involvement.
- In March 2012, the SAB held a public meeting and discussed the Goo memo and a pilot to consider the science underlying four proposed rules identified by OAR (standards for air toxics from boilers and incinerators and greenhouse gas emissions and fuel economy standards for light-duty vehicles).
  - The SAB:
    - Did not identify any science topics related to the four proposed rules warranting SAB comment.
    - Noted that the proposal stage was *too late* in the process for meaningful input.
    - Discussed the need for adequate information on the underlying science for agency actions early in the process. Information beyond the information presented in the Semiannual Regulatory Agenda is needed for this purpose.
- On January 2, 2013, Associate Administrator Michael Goo, the Administrator's Science Advisor Glenn Paulson, and the SAB Office Director Vanessa Vu issued a memorandum (see p. 10) "Identifying EPA Planned Actions for Science Advisory Board (SAB) Consideration of the Underlying Science – Semi-annual Process" requiring EPA to provide short descriptions of *major planned actions that are not yet proposed* appearing in the semi-annual regulatory agenda

- This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices to identify scientific issues that might be appropriate for SAB consideration.

SAB Process

- The SAB Staff manages the semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science as part of the entire SAB operating plan (see Figure 1).

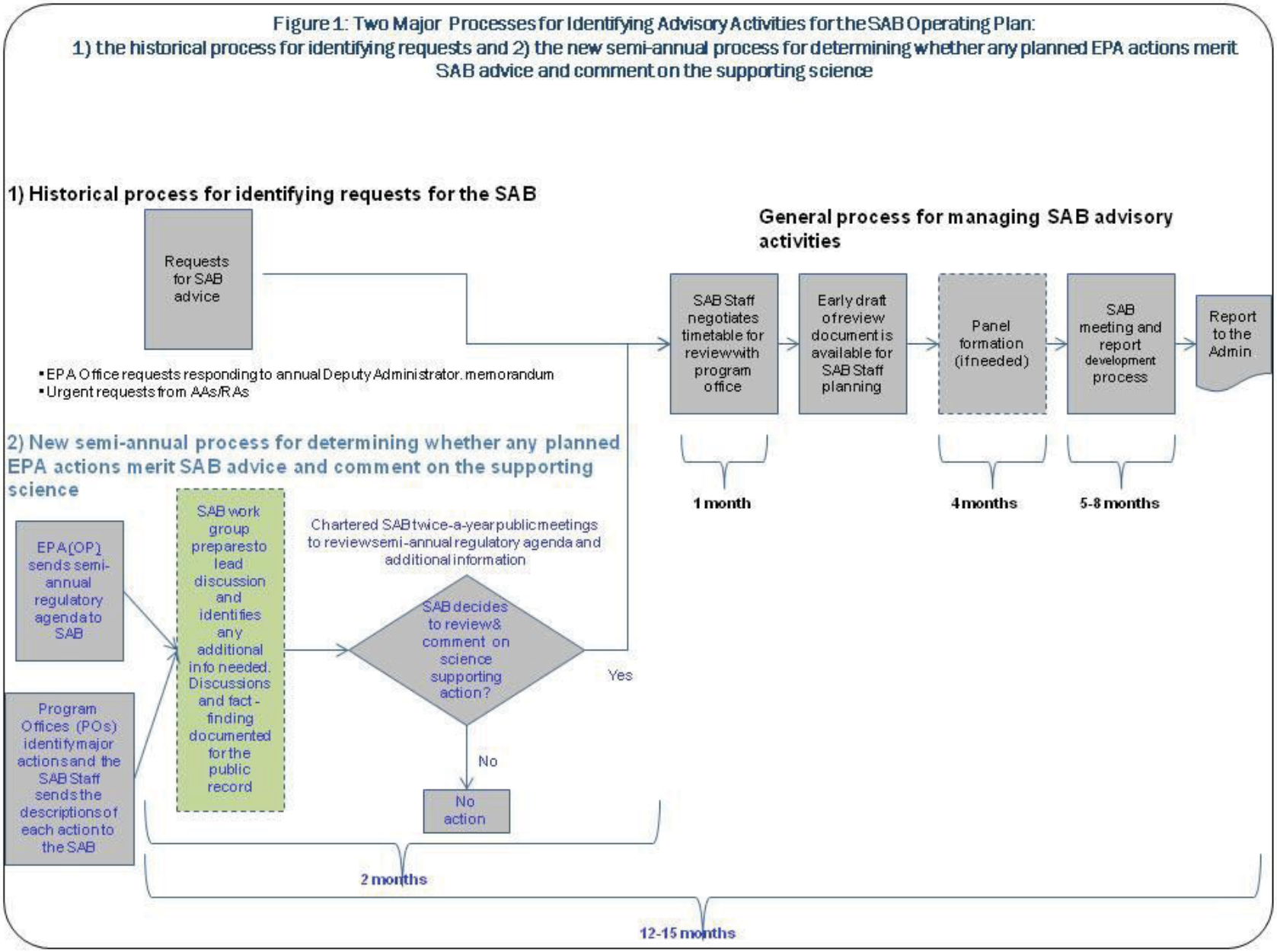
Figure 1: Two Major Processes for Identifying Advisory Activities for the SAB Operating Plan:
1) the historical process for identifying requests and 2) the new semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science
1) Historical process for identifying requests for the SAB
Requests for SAB advice
•EPA Office requests responding to annual Deputy Administrator. memorandum
•Urgent requests from AAs/RAs
General process for managing SAB advisory activities
SAB Staff negotiates timetable for review with program office
Early draft of review document is available for SAB Staff planning
Panel formation (if needed)
SAB meeting and report development process
Report to the Admin
1 month
4 months
5-8 months
2) New semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science
EPA (OP) sends semi-annual regulatory agenda to SAB
Program Offices (POs) identify major actions and the SAB Staff sends the descriptions of each action to the SAB
SAB work group prepares to lead discussion and identifies any additional info needed. Discussions and fact-finding documented for the public record
Chartered SAB twice-a-year public meetings to review semi-annual regulatory agenda and additional information
SAB decides to review & comment on science supporting action?
Yes
No
No action
2 months
12-15 months

Environmental Research, Development, and Demonstration Authorization Act [(ERDDAA), 42 U.S.C. 4365]

TITLE 42--THE PUBLIC HEALTH AND WELFARE

CHAPTER 55--NATIONAL ENVIRONMENTAL POLICY

SUBCHAPTER III--MISCELLANEOUS PROVISIONS

Sec. 4365. Science Advisory Board

(a) Establishment; requests for advice by Administrator of Environmental Protection Agency and Congressional committees

The Administrator of the Environmental Protection Agency shall establish a Science Advisory Board which shall provide such scientific advice as may be requested by the Administrator, the Committee on Environment and Public Works of the United States Senate, or the Committee on Science, Space, and Technology, on Energy and Commerce, or on Public Works and Transportation of the House of Representatives.

(b) Membership; Chairman; meetings; qualifications of members

Such Board shall be composed of at least nine members, one of whom shall be designated Chairman, and shall meet at such times and places as may be designated by the Chairman of the Board in consultation with the Administrator. Each member of the Board shall be qualified by education, training, and experience to evaluate scientific and technical information on matters referred to the Board under this section.

(c) Proposed environmental criteria document, standard, limitation, or regulation; functions respecting in conjunction with Administrator

(1) The Administrator, at the time any proposed criteria document, standard, limitation, or regulation under the Clean Air Act [42 U.S.C. 7401 et seq.], the Federal

Water Pollution Control Act [33 U.S.C. 1251 et seq.], the Resource Conservation and Recovery Act of 1976 [42 U.S.C. 6901 et seq.], the Noise Control Act [42 U.S.C. 4901 et seq.], the Toxic Substances Control Act [15 U.S.C. 2601 et seq.], or the Safe Drinking Water Act [42 U.S.C. 300f et seq.], or under any other authority of the Administrator, is provided to any other Federal agency for formal review and comment, shall make available to the Board such proposed criteria document, standard, limitation, or regulation, together with relevant scientific and technical information in the possession of the Environmental Protection Agency on which the proposed action is based.

(2) The Board may make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed criteria document, standard, limitation, or regulation, together with any pertinent information in the Board's possession.

(d) Utilization of technical and scientific capabilities of Federal agencies and national environmental laboratories for determining adequacy of scientific and technical basis of proposed criteria document, etc.

In preparing such advice and comments, the Board shall avail itself of the technical and scientific capabilities of any Federal agency, including the Environmental Protection Agency and any national environmental laboratories.

(e) Member committees and investigative panels; establishment; chairmenship

The Board is authorized to constitute such member committees and investigative panels as the Administrator and the Board find necessary to carry out this section. Each such member committee or investigative panel shall be chaired by a member of the Board.

(f) appointment and compensation of secretary and other personnel; compensation of members

(1) Upon the recommendation of the Board, the Administrator shall appoint a secretary, and such other employees as deemed necessary to exercise and fulfill the Board's powers and responsibilities. The compensation of all employees appointed under this paragraph shall be fixed in accordance with chapter 51 and subchapter III of chapter 53 of title 5.

(2) Members of the Board may be compensated at a rate to be fixed by the President but not in excess of the maximum rate of pay for grade GS-18, as provided in the General Schedule under section 5332 of title 5.

(g) Consultation and coordination with Scientific Advisory Panel

In carrying out the functions assigned by this section, the Board shall consult and coordinate its activities with the Scientific Advisory Panel established by the Administrator pursuant to section 136w(d) of title 7.

(Pub. L. 95-155, Sec. 8, Nov. 8, 1977, 91 Stat. 1260; Pub. L. 96-569, Sec. 3, Dec. 22, 1980, 94 Stat. 3337; Pub. L. 103-437, Sec. 15(o), Nov. 2, 1994, 108 Stat. 4593; Pub. L. 104-66, title II, Sec. 2021(k)(3), Dec. 21, 1995, 109 Stat. 728.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE AOMINISTRATOR

MEMORANDUM

SUBJECT: Identifying EPA Planned Actions for Science Advisory Board (SAB) Consideration of the Underlying Science- Semi-annual Process

FROM: Michael Goo, Associate Administrator
Office of Policy

Glenn Paulson
Science Advisor

Vanessa Vu, Director
SAB Staff Office

TO: General Counsel
Assistant Administrators
Associate Administrators
Regional Administrators

The purpose of this memorandum is to provide guidance for implementing improved coordination with the SAB, the goal of the memorandum dated January 19, 2012 on that topic (Attachment A).

We ask that you work with the Office of Policy to provide the SAB Staff Office with information about the science supporting major planned agency actions (Tier 1 and Tier 2 actions) that are in the pre-proposal stage. The *2012 Unified (Regulatory) Agenda and Regulatory Plan* was published on December 21, 2012 on the Office of Management and Budget web site http://www.reginfo.gov/public/.

Please provide the SAB Staff Office (contact: Angela Nugent) by January 30, 2013, a brief description of each action along with its supporting science, following the format provided in Attachment B. Please ensure that these submissions to the SAB are consistent with information developed in the action development process.

This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices- to identify scientific issues that might be appropriate for SAB consideration.

We look forward to working with you on this new process to strengthen science supporting EPA's decisions. Please contact us or Caryn Muellerleile (202-564-2855) in the Office of Policy or Angela Nugent (202-564-2218) in the SAB Staff Office, should there be questions.

Attachments

cc: Administrator
Deputy Administrator
Chief of Staff
Deputy Chief of Staff

Attachment A: January 19, 2012 Memorandum from Michal L. Goo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 19 2012

OFFICE OF POLICY

MEMORANDUM

SUBJECT: Coordination with the Science Advisory Board Regarding Proposed Criteria Documents, Standards, Limitations and Regulations

FROM: Michael L. Goo, Associate Administrator
Office of Policy

TO: Assistant Administrators
General Counsel
Chief of Staff
Associate Administrators
Regional Administrators

This is to confirm the procedures that we have discussed regarding coordination with the Science Advisory Board (SAB) on the science and technical information underlying the EPA's proposed criteria documents, standards, limitations and regulations.

In addition to the current process by which program offices identify actions on which they plan to seek advice from the SAB on scientific and technical issues, OP will semiannually inform the SAB, through the SAB Staff Office, of upcoming proposed actions. This process will focus on those proposed regulations, criteria documents, standards or limitations that undergo interagency review and will operate as follows:

1. OP will submit to the SAB staff office a list, based on the Agency's *Semiannual Regulatory Agenda* (*Regulatory Agenda*), augmented as necessary, of upcoming proposed regulations, criteria documents, standards or limitations that are expected to undergo interagency review. OP will work with program and regional offices to ensure that any actions not listed in the *Regulatory Agenda* that nevertheless are expected to be submitted for interagency review are included in this submission. For any of these additional actions, offices should provide a description similar to that provided for actions included in the *Regulatory Agenda*.

2. Program and Regional offices will notify the SAB staff office when proposed Agency actions that undergo interagency review become formally available for public review and comment. EPA programs are also expected to provide additional information as requested by the SAB Staff Office to facilitate the SAB's consideration of this information.

If the SAB decides to review and, as appropriate, comment on the scientific and technical basis for a proposed action, OP will work with the SAB Staff Office and the relevant program or regional office to establish the appropriate time frame for SAB review and comment.

Thank you for your assistance in adhering to this process. If you have any questions or concerns, please contact me, or your staff can contact Nicole Owens owens.nicole@epa.gov, at 202 (564-1550).

cc: Bob Perciasepe
Bob Sussman
Deputy Assistant Administrators
Deputy Associate Administrators
Deputy Regional Administrators
Assistant Regional Administrators
Alex Cristofaro
Nicole Owens
Vanessa Wu
Thomas Brennan

Attachment B - Sample Description of Major Planned EPA Action- Information to be Provided to the SAB

Name of action: Development of Best Management Practices for Recreational Boats Under Section 312(o) of the Clean Water Act

EPA Office originating action: OW

Brief description of action and statement of need for the action:

This action is for the development of regulations by EPA to implement the Clean Boating Act (Public Law 110-288), which was signed by the President on July 29, 2008. The Clean Boating Act amends section 402 of the Clean Water Act (CWA) to exclude recreational vessels from National Pollutant Discharge Elimination System permitting requirements. In addition, it adds a new CWA section 312(o) directing EPA to develop regulations that identify the discharges incidental to the normal operation of recreational vessels (other than a discharge of sewage) for which it is reasonable and practicable to develop management practices to mitigate adverse impacts on waters of the United States. The regulations also need to include those management practices, including performance standards for each such practice. Following promulgation of the EPA performance standards, new CWA section 312(o) directs the Coast Guard to promulgate regulations governing the design, construction, installation, and use of the management practices. Following promulgation of the Coast Guard regulations, the Clean Boating Act prohibits the operation of a recreational vessel or any discharge incidental to their normal operation in waters of the United States and waters of the contiguous zone (i.e., 12 miles into the ocean), unless the vessel owner or operator is using an applicable management practice meeting the EPA-developed performance standards.

Timetable:

Statutory: Phase 1 - 2009, Phase 2 - 2010, and Phase 3 – 2011
Regulatory Agenda: Phase 1 NPRM - 2013, Phase 1FR - 2014

Does the action rely on science that meets the EPA *Peer Review Handbook* definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

No

Scientific questions to be addressed and approach:

Recreational boating activities can contribute to the spread of aquatic nuisance species, primarily through the secondary transport of organisms introduced to U.S. waters via other vectors. For example, recreational boating has been linked to the spread of Zebra and Quagga mussels from their initial introduction into the Great Lakes to other U.S. waters. Consequently, the Agency is considering the development of regulations designed to reduce the spread of such organisms by reducing propagule pressure from the recreational vessel vectors. Propagule pressure is a measure

of the number of individual organisms released as well as the number of discrete release events. While there is a general consensus that an increase in propagule pressure increases the probability of establishing a self-sustaining population of an aquatic nuisance species, the probability is a complex function of a wide range of variables. These variables include species traits (e.g., viability, reproductive capability, and environmental compatibility) and environmental traits (e.g., retention of propagules, and interactions with resident species). When addressing secondary transport via recreational vessels, as this project is designed to specifically do, additional variables such as vessel characteristics, voyage type, and propagule exposure need to be considered. Due to the complexity of this issue, the Agency is seeking expert scientific opinions on management practices that can reduce propagule pressure that results from recreational boating activities.

Plans for scientific analyses and peer review:

The Agency is planning to convene a workshop on secondary transport of aquatic nuisance species via recreational vessels. Invited participants will have expertise in the field of invasion biology and each participant will be charged to provide their expert scientific opinion on management practices that the Agency should consider as part of this rule making.

Attachment B
SAB Work Group Recommendations on Major EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda
May 18, 2018

RIN	Title	EPA Office	Agenda Stage of Rulemaking	Additional Available Information*	Page
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	OP	Pre-rule Stage	Submitted questions**	2
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	OAR	Pre-rule Stage	Submitted questions**	6
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	OAR	Pre-rule Stage	Withdrawal of January 12, 2017 final determination FR Notice 4/13/2018 Submitted questions**	11
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	OAR	Proposed Rule Stage		28
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	OAR	Proposed Rule Stage		31
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	OAR	Proposed Rule Stage	NPRM 11/16/17 Submitted questions**	36
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	OCSPP	Proposed Rule Stage		44
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	OAR	Long-Term Actions		47
2060-AT31	Fuels Regulation Modernization - Phase 1	OAR	Long-Term Actions		50

*Includes publicly available information published in the *Federal Register (i.e., Advanced Notice of Public Rule Making, Notice of Data Availability, Proposed Rules) in addition to the Regulatory agenda and EPA description of the planned action*

*** A summary of the Work Group's submitted questions and agency responses may be found in Attachment C*

Description of Planned EPA Action

1. **Name of action:** Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (ANPRM)

2. **RIN Number:** 2010-AA12

3. **EPA Office originating action:** Office of the Administrator / Office of Policy

4. **Brief description of action and statement of need for the action:**

   EPA is considering developing implementing regulations that would increase consistency across EPA divisions and offices, increase reliability to affected stakeholders, and increase transparency during the development of regulatory actions. Many EPA statutes, including the Clean Air Act and the Clean Water Act, provide language on the consideration of costs, but costs have historically been interpreted differently by the EPA depending on the office promulgating the regulatory action. This has led to EPA choosing different standards under the same provision of the statute, the regulatory community not being able to rely on consistent application of the statute, and EPA developing internal policies on the consideration of costs through non-transparent actions. By developing implementing regulations through a notice-and-comment rulemaking process, it will provide the public with a better understanding on how EPA is evaluating costs when developing a regulatory action and allow the public to provide better feedback to EPA on potential future proposed rules.

   In an Advanced Notice of Proposed Rulemaking (ANPRM) EPA will solicit comments and recommendations on how it can make regulatory cost considerations more consistent, reliable, and transparent. The ANPRM is expected to illustrate how EPA considered costs in recent rulemakings and pose questions to help identify opportunities for improvement. Potential areas of inquiry may include:
   - How EPA should define cost metrics and thresholds for specific terms such as reasonable and practicable
   - How EPA could increase the consistency and reliability of cost considerations within particular statutes (e.g., CAA, CWA) and across statutes
   - How might EPA improve the transparency of how it considers regulatory costs in a consistent, reliable manner.

   Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM).

5. **Timetable:**

   The current EPA Regulatory Agenda reports a target date of February 2018 for publication of the ANPRM.

6. **Scientific products that will inform the action and plans for peer review:**

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

None at this time. The EPA is early in the process of developing the ANPRM. Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM), at which time the Agency will determine the specific scientific products needed and the nature of the peer review intended.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

Not applicable at this time, per answer to 6(a).

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

Not applicable at this time, per answer to 6(a).

6(d). Peer review:

Not applicable at this time, per answer to 6(a).

Recommendation from the SAB Work Group

Name of planned action: Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks		X	
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB Work Group recommends that the SAB review the scientific and technical basis for the Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12) when more information on the planned action is available and at that time determine if advice and comment is appropriate to provide to the Administrator.

Rationale: From the discussion with the EPA staff, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science. There also was the indication that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

We would propose to defer consideration of this action until the next review when more information may be available. Depending upon how the action proceeds, it may well involve precedential issues and become an influential scientific or technical work product.

With respect to the consistency and transparency goals, EPA staff may find the National Research Council's 2012 *Review of the EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida* helpful – especially the chapter on "A Framework for Incremental Cost Analysis of a Rule Change."

Description of Planned EPA Action

1. **Name of action:** State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units

2. **RIN Number:** 2060-AT67

3. **EPA Office originating action:**

   Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division

4. **Brief description of action and statement of need for the action:**

   On October 23, 2015, the Environmental Protection Agency (EPA) finalized the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule (aka the Clean Power Plan). On March 28, 2017, President Trump signed Executive Order 13783 to initiate reconsideration proceedings to suspend, revise or rescind this regulation (among others). On October 16, 2017, the EPA proposed to repeal the Clean Power Plan; the comment period for this repeal is scheduled to be open until April 26, 2018. In a separate but related action, the EPA issued an Advance Notice of Proposed Rulemaking (ANPRM) to solicit information from the public about a potential future rulemaking to replace the Clean Power Plan on December 28, 2017; the comment period for this ANPRM is scheduled to be open until February 26, 2018. The ANPRM has specifically focused on measures that electric generating units can take at the facility to reduce carbon emissions.

   Clean Power Plan Repeal Hot Link: https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-repealing-clean-power-plan-0

   Clean Power Plan replacement ANPRM Hot Link: https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-advance-notice-proposed

5. **Timetable:**

   The administrator has publicly announced a proposed and final version of this regulation in 2018. There are no judicial or more delineated time frames at this stage of the rule-making.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   The EPA is early in the process of developing a proposal, and has not yet determined the specific scientific products needed. The EPA is also still waiting for input from the public from the ANPRM on this subject that will influence what products are needed.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).
See related response in 6(a) above.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
The EPA is early in the process of developing a proposal, and has not yet determined the specific nature of the peer review intended. We do not envision this action relying on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product."

6(d). Peer review:
See related response in 6(a) above.

Recommendation from the SAB Work Group

Name of planned action: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency	X		
Addresses areas of substantial uncertainties	X		
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017. Specifically, the SAB may wish to review: 1.) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; 2.) RIA calculation of climate change benefits on a US-only rather than global scale; and 3.) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the "social cost of carbon" (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Rationale: Planned Action 2060-AT67 is an ANPRM seeking information on systems to reduce carbon dioxide emissions from existing fossil-fueled EGUs. If enacted, the new rule would

essentially serve as a replacement of the Clean Power Plan (CPP), which the Agency has previously proposed to repeal via action 2060-AT55. This ANPR is also intended to solicit information on the proper respective roles of the states and federal government, compliance measures, and state planning requirements associated with emissions of GHG from existing EGUs. The ANPRM seeks comments on a broad range of regulatory scenarios and technical approaches, while considering the overarching environmental objectives of GHG reductions.

The draft SAB recommendations of the Spring 2017 EPA regulatory agenda recommended further SAB review of action 2060-AT55 (CPP repeal). Since a potential replacement rule is in the early information-gathering stage, there do not currently appear to be unique science questions that would not also be addressed in a SAB review of 2060-AT55 (although some may be identified as and if the replacement rule-making proceeds). It is also noted that the stated justification for the CPP replacement is based on a revised legal interpretation, rather than any new science or technology. For these reasons, a separate SAB review of Action 2060-AT67 is not recommended at the present time (an alternative recommendation might be to review the proposed repeal and replacement actions together?).

However, it should be noted that the proposed repeal and replacement of the CPP are both dependent on an October 2017 "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) which includes a number of critically important scientific and technical assumptions and approaches that differ substantially from those employed in many past RIAs, and which may also influence other current or future Agency actions relating to GHG emissions, but which have not been subject to external peer review. Among the most influential and controversial assumptions is that there is no reduction in PM mortality at concentrations below the NAAQS (employed in a "sensitivity analysis", but otherwise not supported by the current science). The SAB CASAC has concurred that PM mortality has no discernible threshold in the past several PM NAAQS reviews, and the SAB Council on Clean Air Compliance Analysis, has expressed similar concurrence in its past several reviews of CAAA Section 812 cost/benefit studies of the CAAA. Several recent Harvard studies (Di et al. 2017a, b) clearly indicate PM mortality at concentrations well below the current daily and annul PM NAAQS respectively.

Other key assumptions in the RIA include a substantial downward revision (87% to 97% lower) to the previously accepted estimates of the "Social Cost of Carbon" (SCC). The previous SCC had been developed and revised over many years by a multi-agency workgroup of scientists and economists, and was recently subject to extensive reviews by the National Research Council. The Phase 1 NRC report reviewed the current (as of 2016) SCC and recommended no short term changes, while the Phase 2 NRC report recommended longer-term approaches and research needs for future revisions. The revised SCC used in the 2017 RIA is not consistent with the NRC recommendations.

Two important changes from previous SCC estimates include limiting assumed benefits from US GHG reductions to the US only rather than considering the global nature of the problem, and using discount rates of 3% and 7% (compared to 2.5%, 3% and 5% used in previous SCC estimates) to project future costs & benefits in current dollars. If each country considered only local climate-related benefits of reducing its local GHG emissions, none would act. Conversely, inaction on US GHG emissions may result in other nations reneging on their emissions reduction commitments. The 3% to 7% discount rates were taken from a 2003 OMB circular A4 - which

also indicated that lower rates might be appropriate for considering long-term intergenerational effects. A 7% discount rate essentially drives assumed benefits towards zero for the future generations which will be most heavily impacted by current GHG emissions. A recent 2017 report from the Council of Economic Advisors recommends that both the high and low bounds of this range should be lowered. Richard Newell, who co-chaired the NRC SCC Review panel recently indicated that "the [3% to 7%] range of discount rates used is not appropriate under standard economics, leading to much weaker policy than would otherwise be the case."

Since the assumptions and methods employed in the 2017 RIA are critical to both the proposed repeal and replacement of the CPP, as well as to other current or future actions pertaining to GHG emissions, it is important that they be subject to external peer review. How, when and by whom such review(s) should be conducted are difficult questions - for which further input and discussion from the entire SAB would be desirable. The issue of PM mortality effects at levels below current NAAQS should be thoroughly considered (again) in the currently ongoing PM NAAQS ISA development and associated CASAC review. Since the NRC Committee has recently completed extensive reviews of the SCC, it could be presumptuous to assume that an SAB committee could improve upon those efforts. However, those NRC reviews were very specifically focused on the previous (pre-2017) SCC estimates. One approach might be to recommend reconvening the NRC Committee and ask them to review just the changes to SCC estimation methods since their last review.

Description of Planned EPA Action

1. **Name of action:** Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles
2. **RIN Number:** 2060-AT77
3. **EPA Office originating action:** Office of Air and Radiation/Office of Transportation and Air Quality
4. **Brief description of action and statement of need for the action:**

   On March 22, 2017, EPA announced its intention to reconsider the Final Determination of the Mid-Term Evaluation (MTE) of greenhouse gas (GHG) standards for model year (MY) 2022–2025 light-duty vehicles and to coordinate its reconsideration with the parallel process to be undertaken by the Department of Transportation (DOT)/National Highway Traffic Safety Administration (NHTSA) regarding Corporate Average Fuel Economy (CAFE) standards for cars and light trucks for the same model years. EPA is authorized to establish GHG standards for light-duty vehicles under section 202(a) of the Clean Air Act.

   This reconsideration follows a January 2017 determination signed by the former Administrator to maintain the current GHG emissions standards for MY 2022-2025 vehicles. The previous determination was preceded by an EPA Proposed Determination in November 2016 and a Draft Technical Assessment Report released jointly by EPA, NHTSA, and the California Air Resources Board in July 2016.

   EPA made a regulatory commitment as part of the 2012 rulemaking establishing the MY 2017-2025 light-duty vehicle greenhouse gas (GHG) standards to conduct a Mid-term Evaluation of the standards for MYs 2022-2025 to determine whether the standards remain appropriate. As a part of the Mid-term Evaluation process, EPA has examined and continues to examine a wide range of factors, such as developments in powertrain technology, vehicle electrification, the penetration of fuel efficient technologies in the marketplace, consumer acceptance of fuel efficient technologies, trends in fuel prices and the vehicle fleet, employment impacts, and many others.

   Additional background and documents related to the Mid-Term Evaluation are available at:
   https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas.

   Rulemaking documents for the model year 2017-2025 standards are available at:
   https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle.

5. **Timetable:**

   EPA plans to issue a new Final Determination no later than April 1, 2018.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   The EPA has developed a wide range of technical and scientific work products to inform the Midterm Evaluation. EPA utilizes two key models: 1) the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) model is a full vehicle simulation model which estimates the GHG emission reduction potential of various combinations of vehicle and powertrain technologies. 2) the Optimization Model for reducing Emissions of Greenhouse Gases from Automobiles (OMEGA) estimates the most cost-effective technology pathways for automobile manufacturers to achieve fleet-wide levels of GHG emissions, by using vehicle effectiveness estimates from the ALPHA model combined with cost estimates for various combinations of fuel efficient technologies. Both the ALPHA and OMEGA model have been peer reviewed and are publicly available.

   https://www.epa.gov/regulations-emissions-vehicles-and-engines/advanced-light-duty-powertrain-and-hybrid-analysis-alpha

   https://www.epa.gov/regulations-emissions-vehicles-and-engines/optimization-model-reducing-emissions-greenhouse-gases

   The EPA assesses advancements in fuel efficient technologies in the vehicle market through an in-house powertrain benchmarking program at its National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Through this effort, the EPA has benchmarked more than 30 vehicles to gather detailed data on the emissions and fuel consumption performance of advanced gasoline engines and transmissions. Over the past five years, the EPA has published about 30 peer-reviewed technical papers regarding the development of the EPA ALPHA model, EPA's benchmarking work, EPA's investigation of advanced automotive technologies, and other technical elements that can help to inform the EPA Mid-term Evaluation. These papers and the data is made publicly available.

   https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#publication

   https://www.epa.gov/vehicle-and-fuel-emissions-testing/test-data-light-duty-greenhouse-gas-ghg-technology

   The EPA continues to assess, with a contractor, FEV, the costs of fuel efficient technologies through a detailed process referred to as cost teardown analysis. The EPA has also assessed both the feasibility and costs of reducing GHG emissions through vehicle light-weighting; the most recent of these studies assessed light-weighting

potential for full-size pickups.
https://nepis.epa.gov/Exe/ZyPDF.cgi/P100MS0E.PDF?Dockey=P100MS0E.PDF

In further investigation of auto manufacturer costs impacts, the EPA commissioned a study on cost reduction through learning in manufacturing. The final report and peer review report can be found at
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100PUSX.PDF

The EPA has conducted research on several fronts relating to consumer and market impacts of the vehicle GHG standards. The EPA assessed consumer satisfaction with fuel efficient technologies through a content analysis study of professional automotive reviews. The EPA is currently continuing to assess consumer issues through a review of consumer survey data, has commissioned research into consumer willingness to pay for various vehicle attributes, and is also exploring the evolving relationship between vehicle performance and fuel economy.

The EPA commissioned research on the vehicle miles traveled rebound effect. The final report and peer review report can be found at
https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N11T.PDF?Dockey=P100N11T.PDF

https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N141.PDF?Dockey=P100N141.PDF

Numerous EPA technical reports and publications informing the MTE can be found on the EPA Science Inventory:

Benchmarking and Hardware-In-The-Loop Operation of a 2014 MAZDA SkyActiv (SAE 2016-01-1007) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309373&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Characterizing SI Engine Transient Fuel Consumption in ALPHA (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328376&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Consideration of Real World Factors Influencing Greenhouse Gas Emissions in ALPHA (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328377&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

EPA ALPHA Modeling of a Conventional Mid-Size Car with CVT and Comparable Powertrain Technologies (SAE 2016-01-1141) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309576&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Estimating GHG Reduction from Combinations of Current Best-Available and Future Powertrain and Vehicle Technologies for a Midsized Car Using EPA's ALPHA Model (SAE 2016-01-0910) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309574&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Fuel Efficiency Mapping of a 2014 6-Cylinder GM EcoTec 4.3L Engine with Cylinder Deactivation (SAE 2016-01-0662) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309578&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Investigating the Effect of Advanced Automatic Transmissions of Fuel Consumption Using Vehicle Testing and Modeling (SAE 2016-01-1142) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309575&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Modeling and Validation of 12V Lead-acid Battery for Start-Stop technology (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=336334&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Modeling the Effects of Transmission Type, Gear Count and Ratio Spread on Fuel Economy and Performance Using ALPHA (SAE 2016-01-1143) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309611&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Peer Review of ALPHA Full Vehicle Simulation Model (PUBLISHED REPORT)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=337970&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Potential Fuel Economy Improvements from the Implementation of cEGR and CDA on an Atkinson Cycle Engine (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328379&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Testing and Benchmarking a 2014 GM Silverado 6L80 Six Speed Automatic Transmission(JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328378&simpleSearch=0&showCriteria=2&searchAll=office+of+transportation&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

The EPA's technical work to inform the MTE is conducted through approaches including in-house testing and model development, commissioning work with experts via contracts, collaborations with other agencies (NHTSA, California Air Resources Board, Department of Energy, Canadian government agencies), stakeholder outreach, peer-review, and review of public comments.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
The work products described above to inform the reconsideration of the MTE final determination meet the definition of influential scientific or technical work products.

6(d). Peer review:
Each of the technical work products conducted to inform the MTE either has been or will be peer reviewed. See 6(a) for the peer reviews that have already been completed and are contained in the EPA Science Inventory or posted to the EPA's Midterm Evaluation web site.

In addition, the EPA has several work products currently undergoing peer review, including:

- EPA's ALPHA model response surface equation report: EPA developed a method of deriving vehicle effectiveness values using an industry standard statistical methodology known as a Response Surface Model, which computationally synthesizes a large set of vehicle simulation outputs from the ALPHA model. This letter peer review was conducted through a contractor, RTI International. EPA is in the process of reviewing the draft peer review report.

- Consumer Willingness to Pay for Vehicle Attributes: EPA commissioned RTI International to work with a subject matter expert in reviewing the academic literature regarding consumer willingness to pay (WTP) for a variety of vehicle attributes (e.g., fuel economy, performance, comfort, range) and to assess the ranges of WTP values in the literature. A letter peer review, conducted through a contractor, of this research report has been completed and EPA is currently reviewing the peer review report.

- Content Analysis of Professional Auto Reviews: EPA commissioned research with a contractor, RTI International, to investigate satisfaction with vehicle fuel efficiency

technologies, through a content analysis of professional automotive reviews. EPA is conducting peer review through submission of journal articles for publication. A journal article has been published on EPA's study of auto reviews for model year 2014 vehicles (Helfand et al. (2016), "Searching for Hidden Costs: A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles," Energy Policy 98: 590-606). EPA has submitted for publication a second paper on our analysis of auto reviews for model year 2014 and 2015 vehicles.

Recommendation from the SAB Work Group

Name of planned action: Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN: 2060-AT77)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		x
Is the action primarily administrative (i.e., involve reporting or record keeping)?		x
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	x	
Is the action an extension of an existing initiative?	x	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		x	
Addresses areas of substantial uncertainties		x	
Involves major environmental risks	x		
Relates to emerging environmental issues	x		
Exhibits a long-term outlook	x		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions[1] to the EPA. They noted that the Work Group identified analyses that "could be considered to inform the forthcoming NPRM" and they will assess these issues as they develop the proposed rule. They also noted the schedule for the rulemaking addressing standards for model years 2022-2025

[1] Attachment C of this memorandum provides submitted questions and EPA's responses

light-duty vehicle greenhouse gas standards has not yet been announced. Key questions to address in such a review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: Additional details are given below regarding the workgroup evaluation of the proposed action. In addition, fact-finding questions submitted to EPA and the EPA responses are given in an appendix.

- On April 2, 2018, the Administrator issued a revised final determination of the Mid-Term Evaluation (MTE) which "initiate[s] a rulemaking process whose outcome will be a final agency action." As such, these recommendations focus on the ongoing rulemaking process that results from the MTE. The ongoing rulemaking process pertains to revision of the now in-effect Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles, hereby after referred to as "the standards". The Administrator finds that the standards are "not appropriate and should be revised."
- The April 2, 2018 final determination relied extensively on public comment without peer review or independent evaluation or validation of claims made by public commenters. The specific ISI or HISI to be used by EPA in the forthcoming proposal is not specified in the announcement of the final determination for the MTE.
- Reconsideration of the MTE did not identify or account for the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impacts of the standard on other pollutants from vehicles, including life cycle emissions from the transport system. These would seem to be logical and necessary areas for scientific and technical assessment, for which Influential Scientific Information (ISI) or

Highly Influential Scientific Information (HISI) would be needed to inform the forthcoming proposal. Such information must be transparent, accessible to the public, and appropriately peer-reviewed.

- EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation, including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. The Administrator argues that the 2022-2025 standards are based on "outdated information" and that new information should be considered, including gas prices, consumer acceptance of advanced technology vehicles, the social cost of carbon, the rebound effect, energy security valuation, technology effectiveness, technology cost, vehicle affordability, and vehicle safety. This implies a significant scope of data and methods which might constitute HISI or ISI and, therefore, which might require appropriate peer review. However, EPA has not provided any information on what HISI or ISI would be developed or used in the forthcoming rulemaking or how such information would be appropriately reviewed.
- The Administrator argues that manufacturers are having difficulty meeting the current standards because they are using banked credits. However, the use of banked credits might be a short term phenomenon that permits manufacturers to account for product development cycles in new vehicle offerings. The expected or possible functions of the credit banking system may be a relevant issue to the review of the standards for which no particular methodology has been articulated by the EPA.
- The Administrator argues that electric vehicle sales are necessary to compliance with the standards. This projection can be evaluated via quantitative analysis that is subject to peer review. The peer-reviewed literature includes some studies that do not support this assumption. Others, such as the National Research Council, have indicated that a variety of approaches could be employed to meet the requirements for the 2025 model year. However, the National Research Council simulations and some of the peer-reviewed literature were focused on mid-sized cars and did not account for the rapid growth of the light truck fleet.
- The Administrator stated, based on a public comment, that "electrified light vehicle" (ELV) sales have decreased. The public comment was based on incomplete information that did not take into account full year sales data for 2016, nor data for 2017, and did not differentiate among vehicle types. ELVs are defined in EPA's draft Technical Assessment Report for the MTE to include hybrid electric vehicles (HEVs), plug-in electric vehicles (PHEVs), and battery electric vehicles (BEVs). Total ELV sales peaked in 2013 and bottomed out in 2015. HEV sales bottomed out in 2016. ELV sales in 2017 are 11 percent lower than in 2013 because the decline in HEV sales has outweighed the steady rise in sales of PHEVs and BEVs. The rise in sales of plug-in electric vehicles may not be entirely encouraging because it is concentrated in mid-price to high-price models, coupled with tax credits, rather than the more affordable models that may be needed to achieve mass commercialization.
- Any revision of the standards is likely to be highly controversial. California has an EPA waiver issued under the Clean Air Act to develop its own vehicle emissions regulations. One of the key goals of the 2017-2025 standards was to harmonize the federal standard

and the California GHG standard into a Joint National Program. However, state zero emission vehicle (ZEV) standards were not harmonized with the EPA and NHTSA standards. California completed its own MTE and found that the California standards – both its GHG and ZEV standards -- were appropriate. Other states on the West Coast and in the Northeast region of the US have chosen to adopt California standards. If the EPA revises the federal standards such that they differ from those of California, and if EPA grants California a waiver for separate standards, the U.S. will have disparate standards in different parts of the country, thereby creating compliance complications for automakers. If EPA revises the federal standards but does not grant a waiver to California, that would also be highly controversial. Revisions to the standards are likely to be controversial for other reasons as well. For example, reductions in GHG emissions are critical to mitigation of climate change, which has long-term public health, safety, and ecological implications.

- Other details are as noted below.
- Some of the issues identified here, such as the social cost of carbon, cut across multiple planned actions, including 2060-AT55, 2060-AT56, and 2060-AT67. Other issues are unique to the standards.

Detailed Assessment

On April 2, 2018, the EPA Administrator determined that the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles "are not appropriate". This concludes the Reconsideration of the Final Determination of the Mid-Term Evaluation of these standards. However, the effect of the April 2, 2018 decision is to "initiate a rulemaking process whose outcome will be a final agency action." The final agency action is expected to be a revision of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles. Until such time as these standards are revised, replaced, or rescinded, they remain in effect. As justification for the MTE decision that the standards are "not appropriate," the Administrator cites the following key factors:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers
5. The impact of the standards on the automobile industry
6. The impacts of the standards on automobile safety
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

Not mentioned among the key factors is the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impact of the standards with regard to co-benefits of reduced emissions of other pollutants and reduced life cycle emissions for vehicles.

Modification of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (referred to hereafter as "the standards") will entail review and interpretation of a substantial amount of information and data. The rulemaking process will involve the use of influential scientific information (ISI) or highly influential scientific information (HISI). The April 2, 2018 notice relies extensively on public comments. The specific ISI or HISI to be used by EPA in the forthcoming rulemaking is not specified in the announcement of the final determination for the MTE. Thus, at this time, the SAB Regulatory Review Working Group should conduct fact-finding or request more information from EPA regarding the planned action to revise the standards.

Mid-Term Evaluation – Version 1

According to EPA, "the Mid-Term Evaluation was established to review standards set in a 2012 joint rulemaking by the EPA and NHTSA, which set federal GHG emissions and CAFE standards for MY 2017 and beyond for light-duty vehicles. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, Final Rule, 77 FR 62624 (Oct. 15, 2012)." "These standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles (i.e., sport utility vehicles, cross-over utility vehicles and light trucks), collectively referred to as light-duty vehicles. EPA set GHG standards (including standards for emissions of carbon dioxide (CO2), nitrous oxide, methane and air conditioning refrigerants) for MY 2017–2025 passenger cars and light-trucks under section 202(a) of the CAA. NHTSA sets national CAFE standards under the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA) of 2007."

In November, 2016, EPA issued a proposed determination for the Mid-Term Evaluation. 81 FR 87927 (Dec. 6, 2016). On January 12, 2017, the EPA Administrator signed the Final Determination of the Mid-Term Evaluation of light-duty vehicle GHG emissions standards for MYs 2022–2025." In a letter to stakeholders announcing the final determination of the MTE, the Administrator stated "the standards adopted in 2012 by the EPA remain feasible, practical and appropriate under section 202(a) and do not need to be revised, after considering the factors laid out in the 2012 rule." Furthermore, the Administrator noted "the success of the industry to date in achieving seven years of record sales while producing a large variety of vehicles that meet or exceed the standards reflects the fact that the development and deployment of advanced technology conventional gasoline engines has happened consistent with a robust vehicle market, more rapidly than we predicted, and at costs that are comparable or slightly lower than we predicted."

Scientific and Technical Analyses for the 2012 Rule and the MTE

The technical analyses that were the basis of the 2012 rule making and that informed the final determination for the MTE was extensive. They included, but were not limited to, EPA staff reports on a consumer vehicle choice model (2012), Testing a Model of Consumer Vehicle Purchases (2015), Mass Reduction and Cost Analysis— Light-Duty Pickup Truck Model Years 2020-2025 (2015), evaluation of The Rebound Effect from Fuel Efficiency Standards (2015) (including external peer review that "expressed overall support for the methodology"), A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles (2015), Cost Reduction through Learning in Manufacturing Industries and in the Manufacture of Mobile

Sources (2016), draft Technical Assessment Report for the MTE (1217 pages, 2016, jointly with CARB and NHTSA), and a Final Determination of Appropriateness under the MTE (2017). Furthermore, EPA staff authored or co-authored a series of reports submitted for peer review and publication on topics such as development of an efficiency test for air conditioners, cost effectiveness of lightweight design for a crossover SUV, development of an advanced light duty power train and hybrid analysis tool, modeling and validation of power-split and parallel hybrid electric vehicles, and others. Moreover, EPA developed new modeling tools including the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) Tool and Optimization Model for reducing Emissions of Greenhouse gases from Automobiles (OMEGA).

In a 2015 report, the National Research Council issued its review and recommendations regarding the methodology used by EPA and NHTSA in developing the 2017-2025 MY GHG and CAFÉ standards. "The committee found the analysis conducted by NHTSA and EPA in their development of the 2017-2025 standards to be thorough and of high caliber on the whole. In particular, the committee notes that the use of full vehicle simulation modeling in combination with lumped parameter modeling has improved the Agencies' estimation of fuel economy impacts. Increased vehicle testing has also provided input and calibration data for these models. Similarly, the use of teardown studies has improved the Agencies' estimates of costs." The NRC recommended updating some of the cost estimates during the MTE process. The committee estimated that downsized turbocharged engines would provide fuel consumption "close to that estimated by NHTSA" but with up to 15 percent higher manufacturing cost. NRC's simulations of multiple technologies for mid-sized cars found that NHTSA's 2012 analysis had underestimated technology costs by 11% or 56%, depending on the specification of updated cost inputs. However, the NRC committee further noted that "There are also new technologies not considered by EPA and NHTSA that might provide additional fuel consumption reductions for SI engines, or provide alternative approaches by 2025 and beyond. These technologies include higher compression ratio, exhaust scavenging, lean burn, and electrically assisted supercharger approaches and alternative fuels such as compressed natural gas-gasoline bi-fuel engines and ethanol-boosted direct injection engines." The NRC also found that continuously variable transmissions (CVTs) will experience more market penetration than assumed by the agencies, that more attention should be given to lightweighting, that more attention should be given to understanding why consumers undervalue fuel economy relative to its discounted expected present value, and to monitoring the effects of the standards on fuel efficiency, vehicle footprint, fleet size mix, safety, and the price of new vehicles to understand the impact of the rules on consumers' choices and manufacturers' products offered.

With regard to the latter, EPA has issued Manufacturer Performance Reports for the 2015 and 2016 model years that documents the status of auto manufacturer compliance with the GHG standards since the standards took effect in the 2012 model year. EPA has also published The Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends Report annually to summarize trends in EPA's best estimate of real world tailpipe carbon dioxide (CO2) emissions and fuel economy, and associated technologies. These reports quantify that manufacturers have responded to the GHG emission and fuel economy standards by adopting a range of technologies such as gasoline direct injection.

Mid-Term Evaluation – Version 2

On March 22, 2017, EPA announced its intent to reconsider the Final Determination of the Mid-Term Evaluation of greenhouse gas (GHG) standards for model year (MY) 2022-2025 light duty vehicles and to coordinate this reconsideration with the US DOT's NHTSA regarding Corporate Average Fuel Economy (CAFÉ) Standards for cars and light trucks for the same model years [Federal Register, Vol. 82, No. 54, page 14671]. "EPA has concluded that it is appropriate to reconsider its Final Determination in order to allow additional consultation and coordination with NHTSA in support of a national harmonized program." Under the original timeline for the MTE, EPA was required to determine no later than April 1, 2018 whether the standards for model years 2022 to 2025 are appropriate.

On August 21, 2017, EPA requested comment on "the separate question of whether the light-duty vehicle greenhouse gas standards established for model year 2021 remain appropriate, regardless of the agency's decision on the MTE," with comments to be received by October 5, 2017.

On August 23, 2017, EPA announced a hearing to be held on September 6, 2017 in Washington DC on "Reconsideration of the Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Years 2022–2025 Light-Duty Vehicles."

Notice of Final Determination for the Mid-Term Evaluation

On April 2, 2018, the EPA Administrator announced that the finding of the reconsideration of the final MTE is "the current standards are not appropriate and should be revised" and that a joint process would be starting with the NHTSA "to develop a notice and comment rulemaking to set more appropriate GHG emissions standards and Corporate Average Fuel Economy (CAFE) standards."

In an April 2, 2018 announcement of the reconsideration of the final determination of the MTE, EPA states that "the current standards are based on outdated information, and that more recent information suggests that the current standards may be too stringent." EPA mentions that gas prices and "consumer acceptance of advanced technology vehicles" differ from assumptions made in support of its January 2017 MTE determination. EPA also states that "Economic inputs such as the social cost of carbon, the rebound effect, and energy security valuation should also be updated to be consistent with the literature and empirical evidence." Furthermore, "EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration." The EPA also states that "the reach and success of the program established in the 2012 rulemaking is significantly limited when consumers cannot afford new cars. New information and data provided show the potential significant negative effects of higher vehicle costs." The Administrator said the current standards present "challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers, especially low-income consumers."

As an example of challenges to auto manufacturers, the Administrator states that manufacturers are "relying on banked credits which suggests that it may be increasingly difficult for them to

comply going forward as they use up their supply of credits." This interpretation may be inaccurate. Another interpretation is that the banked credits have economic value to the manufacturers, and that manufacturers consume banked credits periodically in order to respond to compliance deadlines while respecting normal product life cycles. For example, when a more fuel efficient new generation of a model is introduced, credits would be banked early in the generation life cycle but might be consumed later in the generation life cycle, to allow manufacturers flexibility and lead time to design the subsequent more efficient generation to follow. The use of a credit banking system provides manufacturers with flexibility to account for the lead time necessary to introduce new technology without shortening the payback period on investment in existing technology.

EPA contends, based on a public comment, that electrified vehicle sales have decreased in total and as a percentage of light vehicle sales. Although annual sales of HEVs in recent years are much lower than their peak in 2013, the trend in sales for PHEVs and BEVs has generally been positive (except for a slight decline in 2015). Total ELV sales in 2013 were 624,610 vehicles, including 536,383 HEVs, 41,376 PHEVs, and 46,832 BEVs. Total ELV sales in 2017 were 555,167 vehicles, including 365,320 HEVs, 91,724 PHEVs, and 96,261 BEVs. Sales of all three types of electrified vehicles are higher in 2017 than in 2016. Gasoline prices collapsed in the US in 2014 and HEVs were no longer permitted on California's HOV lanes. These factors contributed to the recent decreases in HEV sales. The net decline in HEV sales from 2013 to 2017 has more than offset the rise in plug-in electric vehicle sales over the same period. Thus, consumer acceptance of fuel efficient vehicles is a major challenge.

The current U.S. fuel economy standard requires average LDV fuel economy of 40.3 to 41.0 mpg by 2021 and 48.7 mpg to 49.7 mpg by 2025. The current U.S. LDV CO_2 emission standard of 163 g/mile is equivalent to 54.5 mpg if it were to be met only by fuel economy improvement of gasoline-fueled vehicles, but can be met with vehicles powered by other fuels or electricity. Furthermore, the standard is based on FTP and HFET test results, not the downward adjusted fuel economy rating (EPA, 2018). The NRC found that a likely option for further improving LDV fuel economy is to replace naturally aspirated engines with downsized (smaller displacement) turbocharged engines, though NRC focused more on mid-sized sedans than light trucks in their simulation modeling (NRC, 2015). The market share of new LDGVs with turbocharged engines has grown from less than 5 percent in 2010 to over 20 percent in 2016. Effective strategies for meeting the current 2025 model year U.S. fuel economy target of 54.5 mpg could include either increased hybridization, increase in the 0 mph to 60 mph acceleration time, a decrease in interior volume, or combinations of these (Luk et al., 2016, Whitefoot et al., 2017). Lightweighting of vehicles is another possible strategy that agencies predict will be used to reduce fuel consumption and GHG emissions.

There are numerous other potential opportunities for increasing fuel efficiency of vehicles. For example, use of higher ethanol blends, which lead to higher octane, could lead to the development of higher compression ratio engines that are more fuel efficient. On the other hand, ethanol has less energy value than gasoline and therefore ethanol blending reduces fuel economy compared to 100% gasoline. However, on an energy basis, engine operation on ethanol is typically at least as energy efficient compared to operation on neat gasoline. EPA reports that automakers agree that higher octane is a possible path forward but a separate rulemaking on

fuels, which also would likely trigger controversy, would be required to compel higher octane levels.

The California Air Resources Board completed its own mid-term evaluation in March 2017 and found that both the California GHG and zero-emission vehicle standards were appropriate. California performed supporting analyses from California's perspective. California historically has had a waiver under the Clean Air Act to set its own vehicle emission standards. When the EPA set fuel economy and GHG emission standards in 2012, it did so to harmonize the Federal standard with the California GHG standard. State zero-emission vehicle requirements were not included in the harmonization effort.

In identifying various factors that might argue for or against revising the existing standard, EPA states that there "is significant uncertainty" in the pace of development and degree of efficiency improvements of new technologies, and that "this uncertainty further supports its determination to reconsider the current standards through a subsequent rulemaking." Consumers of cars (but not SUVs) are more likely to adopt electric drive vehicles if provided information on the total cost of owning the vehicle over its lifetime rather than information regarding the five year cost of ownership contained on EPA's label (Dumortier et al, 2015). Given that auto manufacturers and dealers spend substantial resources on advertising, and can also implement pricing strategies among different vehicle models, it may be feasible for automakers and dealers to encourage more consumers to adopt high fuel economy vehicles. However, previous concerted efforts by selected vehicle manufacturers to market fuel-economy innovations (e.g., Honda's Insight, Ford's Escape Hybrid, and the Nissan Leaf) have had only mixed success.

EPA expressed concern about the affordability of new vehicles to low income households, but did not express concern regarding the disproportionate impact on low income households from GHG emissions insofar as those households are less able to adapt to climate change than high-income households. EPA mentioned that a study by Synapse Energy Economics for Consumers Union found that entry level vehicle prices have been roughly the same for the last 10 years. EPA indicated that the potential of decreased adoption of newer cars should be considered in future rulemaking.

EPA states that the only MY 2017 vehicles that could comply with the MY2025 standards have a very low consumer purchase rate. Referring to an industry provided figure, EPA implies that only electric drive vehicles could be the basis for a fleet that meets the MY 2025 standard. However, the MY 2025 standard is a fleet-based standard, not a standard that applies to specific vehicle models individually. Missing from the MTE final determination is any discussion of the typical technology adoption and diffusion patterns for new technologies. A commenter conveyed that vehicle models with larger fuel economy improvements have had larger sales increases than those with lower fuel economy improvements, but the market shift from sedans to crossovers and other light-truck products is changing the compliance challenge for vehicle manufacturers.

EPA expressed concern that if consumers are less willing to adopt new technology vehicles, the reductions in fuel consumption and emissions from the program may be less than expected and should be considered as part of the planned rulemaking. The fuel price projections used in the 2012 rule are higher than current fuel prices, and current reference-case projections of the Energy Information Agency indicate that fuel prices will be much lower in future years than had

been projected by EIA at the time of EPA's in 2012 rulemaking. However, EIA energy-price projections are often inaccurate compared to future realities. It may be more fruitful to develop estimates based on an ensemble of scenarios than to fixate on EIA's reference-case scenario. In 2025, average fuel prices could be much lower or much higher than EIA is projecting in their reference scenario, and EIA supplies high and low fuel-price scenarios to inform sensitivity analyses.

EPA raised the issue of rebound effect based solely on public comment but did not offer any assessment of this issue. Although EPA agrees that there are co-benefits of the GHG vehicle emission standards with respect to reduction of emissions and ambient concentrations of criteria pollutants regulated under the NAAQS, EPA states "those issues are already handled through the NAAQS implementation process." The NAAQS implementation process does not involve setting fuel economy standards or GHG emission standards for new vehicles. However, if vehicle standards make it easier for states and localities to comply with NAAQS, then states and localities may permit greater levels of emissions from stationary sources than might otherwise be the case. Thus, the net effect of GHG-standard co-benefits on concentrations of criteria air pollutants requires assumptions about the policy decisions of state and local regulatory bodies and emission-control decisions by stationary sources.

EPA claims that the MY 2022-2025 standards would reduce vehicle sales over those four years by 1.3 million vehicles due to higher vehicle prices, based on a study submitted as part of public comments. However, the validity of the study, who funded it, and whether it was peer-reviewed was not mentioned. EPA cites Carley et al (2017), funded by the Alliance of Automobile Manufacturers, that estimates short-term macroeconomic effects of the standards (including the state zero emission vehicle regulations as well as the federal standards) that are negative but become positive sometime between 2022 and 2035 as a result of fuel savings and stimulus of the automotive supply chain. In the long run, the positive macroeconomic effects of the federal and state standards were much larger than the near-term negative effects.

EPA states that it intends to further assess the scope of safety analyses related to fleet turnover.

EPA summarized auto manufacturer public comments that seek a national harmonized standard between federal and California standards.

Although acknowledging that regulatory certainty and sufficient lead time is important, the EPA nonetheless proposes to reconsider standards effective with the 2022 model year which is less than four years away from the current 2018 model year. EPA argues that because NHTSA did not undertake their required rulemaking process related to the corporate average fuel economy standard, EPA should reconsider its already established rule.

The effect of the revised determination is not a final regulatory action: the effect of this determination is to initiate a rulemaking process, during which time the current standards remain in effect.

Clearly, any proposed reconsideration of the existing 2022-2025 MY GHG and CAFÉ standards will entail the use of influential scientific information (ISI) and highly influential scientific

information (HISI). There may also be revised interpretations of previously developed ISI and HISI.

Several of the EPA contractor or staff reports appear to have had letter reviews conducted by contractors using a limited number of reviewers, while other technical reports were said to be reviewed by virtue of having them published in peer reviewed publications. However, it would be helpful to obtain more information from EPA staff regarding the nature and specifics of these review activities. There was no comprehensive SAB review of the technical assessment report prepared jointly by EPA, NHTSA and CARB.

EPA continues to collect data that are published in annual reports, including a trends report and a manufacturer performance report, but it is unclear if these annual reports have had appropriate review.

Furthermore, it is unclear as to what additional information will be considered in a revised rule-making process. For example, there have been numerous peer-reviewed journal papers and other studies that pertain to this topic area. EPA has cited public comments and reports submitted by stakeholders. If the Agency intends to make use of such information as part of the reconsideration of the MY2022-2025 standard, whether such information is ISI or HISI should be determined and, as needed, subject to appropriate peer review.

EPA did not mention in its MTE final determination updated information regarding the effect of GHG emissions on climate change, or updated information that would enable improved estimates of other benefits of the standard.

Description of Planned EPA Action

1. **Name of action:** Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides

2. **RIN Number:** 2060-AT68

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards

4. **Brief description of action and statement of need for the action:** Under the Clean Air Act Amendments of 1977, EPA is required to review and if appropriate revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On June 22, 2010, EPA published a final rule to revise the primary (health-based) NAAQS for Sulfur Oxides to provide increased protection for public health. This review includes the preparation by EPA of an Integrated Review Plan, an Integrated Science Assessment, and, if warranted, a Risk/Exposure Assessment, and also a Policy Assessment Document, with opportunities for review by EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the current standard. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.

5. **Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle for the NAAQS. EPA is currently on a court-ordered schedule to issue a proposed determination/rule in May 2018 and a final determination/rule in January 2019.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action. For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis). Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP,

ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Review of the NAAQS rely on assessment documents that are designated as "highly influential scientific assessments."

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information: https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC

Recommendation from the SAB Work Group

Name of planned action: Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action has undergone a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Sulfur Oxides Review Panel. CASAC is a FACA committee. The SOx Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS. On April 30, 2018, CASAC submitted its comments on EPA's Policy Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides (External Review Draft - August 2017) and regarding its advice on this standard. Thus, the scientific review by CASAC for this review cycle has concluded. EPA finalized the Policy Assessment on May 9, 2018.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review

2. **RIN Number:** 2060-AT74

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division

4. **Brief description of action and statement of need for the action:**

   The Clean Air Act (CAA) establishes a two-stage regulatory process for addressing emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, the CAA requires the EPA to develop technology-based standards for categories of industrial sources. In the second stage of the regulatory process, the EPA must review each maximum achievable control technology (MACT) standard at least every 8 years and revise them as necessary, "taking into account developments in practices, processes and control technologies." We call this requirement the "technology review." The EPA is also required to complete a one-time assessment of the health and environmental risks that remain after sources come into compliance with the MACT standards. If additional risk reductions are necessary to protect public health with an ample margin of safety or to prevent adverse environmental effects, the EPA must develop standards to address these remaining risks. For each source category for which the EPA issued MACT standards, the residual risk stage must be completed within 8 years of promulgation of the initial MACT standard. Since the initial technology review requirement deadline coincides with the risk review requirement deadline, the EPA generally combines these two requirements into one rulemaking activity, calling this the "risk and technology review" process, or simply RTR. In this way, results of the risk review can be potentially informative to the technology review process, and vice versa.

   For the first stage, the EPA issued national emission standards to control hazardous air pollutants (NESHAP) emitted from hydrochloric acid production in April 2003 (68 FR 19076). Amendments to the NESHAP were made after promulgation, resulting in final amendments on April 7, 2006 (71 FR 17738).

   For this action, as the second stage of the regulatory process, and as we have done for more than 50 source categories to date, we plan to conduct the residual risk review and initial technology review concurrently.
   Hot Link: Hydrochloric Acid Production: National Emission Standards for Hazardous Air Pollutants (NESHAP) | Stationary Sources of Air Pollution | US EPA

5. **Timetable:**

   Pursuant to a court order related to the review of 20 source categories, the EPA must complete 20 RTR final rules by March 13, 2020, including this action (*i.e.*, the RTR final

rule for Hydrochloric Acid Production). The EPA currently plans to complete this action by June 30, 2019. Tentative schedule:

Proposed RTR Rule: June 2018
Final RTR Rule: June 2019

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
It is the risk analysis methodologies associated with the RTR process that have undergone scientific peer reviews. There are no other scientific work products that have been or will be developed to inform this planned action.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (*e.g.*, any inter-agency collaboration, workshops to inform the analysis).
Because RTR assessments are used for regulatory purposes, and because components of our risk analyses have evolved over time, we have, over the course of the program, conducted scientific peer reviews of the methodologies through the Science Advisory Board (SAB). Through peer review of the RTR process as a whole, rather than each individual rulemaking effort, the agency is able to conduct consistent risk characterizations across all categories of industrial sources.
As described above, the EPA also conducts a technology review to account for developments in practices, processes and control technologies.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
While the overall RTR risk assessment methods meet the definition as "an influential scientific or technical work product," each individual RTR analysis does not fit this definition.

6(d). Peer review:
Each RTR analysis follows a consistent risk characterization approach using methodologies that have undergone numerous peer reviews. Previous peer reviews have covered elements associated with the RTR process or assessments with similar scopes or contexts. A brief summary of each peer review is provided:

(1) The Residual Risk Report to Congress, a document describing the agency's overall analytical and policy approach to setting residual risk standards, was issued to Congress in 1999 following an SAB peer review. Many of the design features of the RTR

assessment methodology were described in this report, although individual elements have been improved over time.
Hot Link to the final SAB advisory: https://www3.epa.gov/ttn/atw/rrisk/risk_rep.pdf.

(2) A peer review of multi-pathway risk assessment methodologies for RTR was conducted by the EPA's SAB in 2000.
Hot Link to the final SAB advisory:
http://yosemite.epa.gov/sab/sabproduct.nsf/1F1893E27059DB55852571B9004730F7/$File/ecadv05.pdf.

(3) A consultation on the EPA's updated methods for developing emissions inventories and characterizing human exposure was conducted by SAB in December 2006. The SAB provided its formal consultation in a letter to the Administrator in June 2007.
Hot Link to the final SAB advisory:
https://yosemite.epa.gov/sab/sabproduct.nsf/33152C83D29530F08525730D006C3ABF/$File/sab-07-009.pdf.

(4) A review of the updated and expanded risk assessment approaches and methods used in the RTR program was completed in 2009. This methodology was highlighted to the SAB utilizing two RTR source categories: Petroleum Refining Sources MACT I and Portland Cement Manufacturing.
Hot Link to the final SAB advisory:
https://yosemite.epa.gov/sab/sabproduct.nsf/0/b031ddf79cffded38525734f00649caf!OpenDocument&TableRow=2.3#2.

(5) The individual dose-response assessment values used in the RTR assessment have themselves been the subject of peer reviews through the agencies that developed them (including the EPA through its Integrated Risk Information System, or IRIS; the California Environmental Protection Agency, or CalEPA; and the Agency for Toxic Substances and Disease Registry, or ATSDR).

(6) The EPA is currently seeking SAB input on specific enhancements made to our risk assessment methodologies, particularly with respect to screening methodologies, since the last SAB review was completed in 2009 (see #4 above). In May 2017, the EPA submitted a report describing the updated risk screening methodologies to the SAB for review. In June 2017 the SAB expert panel met to discuss the new methodologies. SAB's findings for this review are expected in the Spring of 2018.

Recommendation from the SAB Work Group

Name of planned action: National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues			X
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further review by the SAB.

Background: The EPA uses a standard process to conduct risk and technology reviews for National Emissions Standards for Hazardous Air Pollutants. This process is explained in the Background section on pages B-31-B33.

Rationale: In 2003, EPA promulgated a final rule to reduce toxic air pollutant emissions from new and existing hydrochloric acid plants. This Hydrochloric Acid Production NESHAP

established emission limitations and work practice requirements based on maximum achievable control technology (MACT) for control of hazardous air pollutants (HAP). The pollutants emitted from hydrochloric acid production include hydrochloric acid and chlorine. These pollutants predominantly originate from process vents, storage tanks, transfer operations, and equipment leaks. EPA standards are required to provide an ample margin of safety to protect public health or an adverse environmental effect. EPA is required to review and revise the MACT standards as necessary, taking into account developments in practices, processes and control technologies no less often than every 8 years. As part of the technology review, EPA will need to identify whether new approaches to hydrochloric acid production have emerged that can more effectively prevent or control the emission of these and other pollutants. Cost must also be considered when setting a MACT standard. Therefore, a cost analysis must also be conducted.

The Work Group finds that the RTR risk assessment screening methodology is broadly applicable to many source categories, prior aspects of the data and methods identified have been subject to review by the SAB and others. The unique details of each RTR can include recommendations for new monitoring and MACTs. In general, these technologies are based on established scientific knowledge that has undergone extensive peer review. However, there can be exceptions, and the SAB encourages to EPA to continually assess and identify for SAB review any such technology recommendations that are based on new scientific knowledge. This planned RTR does not merit further review by the SAB.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

2. **RIN Number:** 2060-AT79

3. **EPA Office originating action:** Office of Air and Radiation

4. **Brief description of action and statement of need for the action:**

   EPA is proposing to repeal the emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits based on a proposed interpretation of the Clean Air Act (CAA) under which glider vehicles would be found not to constitute new motor vehicles within the meaning of CAA section 216(3), glider engines would be found not to constitute new motor vehicle engines within the meaning of CAA section 216(3), and glider kits would not be treated as incomplete new motor vehicles. Under this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

5. **Timetable:**

   NPRM Publication: 11/16/2017
   NPRM Comment Period End: 01/05/2018
   Final Rule: To Be Determined

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   There is uncertainty about what scientific work, if any, would support the FRM.

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).
   N/A – No approaches have been developed since there is uncertainty regarding what, if any, analysis would be done.

   6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
   N/A

   6(d). Peer review:
   N/A

Recommendation from the SAB Work Group

Name of planned action: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	[---	--]
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		X	
Addresses areas of substantial uncertainties			X
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA states that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?
- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet

level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: The main reasons for this recommendation are briefly listed followed by more detailed explanation.

- The proposed rule lacks transparency regarding the sources of and basis for data regarding costs, emissions, life cycle implications, and safety.
- The proposed rule lacks rigorous analyses of pertinent technical and scientific issues, instead relying on summaries of comments submitted by the public that have not been independently assessed or validated.
- Health effects of the proposed action are not quantified. EPA does, however, acknowledge that ""Some of the benefits for children's health … would be lost as a result of this action."
- EPA does not characterize or quantify the effect of the proposed rule with regard to challenges it would pose for attainment of air quality standards.
- Regarding comparison of emissions of glider trucks with conventional trucks, EPA relies on a study conducted by Tennessee Tech University (TTU). The TTU study was not peer-reviewed. Since the rule was proposed, the study has been withdrawn by the president of TTU as a result of TTU faculty senate concerns regarding lack of validity of the study. On February 26, 2018, Fitzgerald Glider Kits, which sponsored the TTU study, wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from disclosure. Thus, EPA cannot use this study as a basis for rule-making.
- EPA failed to take into account its own study, published 4 days after the proposed rule, that shows that glider truck emissions can be substantially higher than those from conventionally manufactured trucks.
- Although EPA indicates that "the Agency views the glider issue as one of legal authority," the proposed rule relies on technical information on issues alluded to above. The SAB has no comment on the issue of legal authority. However, the proposed rule argues that there are cost, energy, emissions and safety benefits of glider trucks, and thus in appearance is not relying solely on an interpretation of legal authority as the basis for the proposed rule. It is in the best interests of the EPA to use credible technical information in a proposed rule.
- This proposed action is highly controversial in that, if it were to be promulgated as proposed (with no apparent cap on maximum allowable glider truck sales), it would create a market for glider trucks that would remain in the vehicle fleet for decades to

come, and displace purchases of conventionally manufactured new trucks (or recent model year conventionally manufactured used trucks of comparable price) and thereby slow the process by which fleet turn over would lead to real-world emissions reductions.

Background

On November 16, 2017, EPA published a proposed rule to Repeal Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (Federal Register, Vol 82, page 53442). The deadline for public comments was January 5, 2018. The EPA denied requests from the American Lung Association and the Northeast States for Coordinated Air Use Management (NESCAUM) for an extension of the public comment deadline. The following definitions pertain to this proposed action. A glider vehicle (or glider truck) is a truck that has new body parts but utilizes a previously owned powertrain (including the engine, transmission, and usually the rear axle). New body parts put together to form the "shell" of a truck, such as the tractor chassis with frame, front axle, brakes, and cab, are referred to collectively as a "glider kit."

According to the EPA in its notice of the proposed rule, gliders are approximately 25% less expensive than new trucks, which is said to make them attractive to small business owners and operators. However, in public comments to EPA, Volvo stated that "our dealer network informs us that glider vehicles are often purchased at pricing similar to that of comparably configured new compliant vehicles. From this it's evident that glider vehicle buyers do not find new compliant vehicles to be unaffordable; they do, therefore, have options other than keeping older vehicles on the road." The basis for EPA's claim that gliders are 25% less expensive than new trucks is not provided.

A commenter is reported by EPA to have stated that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. However, the basis for this claim is not given in the proposed rule, nor does the proposed rule include any technical analysis by EPA staff to confirm or validate this claim. The net impact of the proposed rule on greenhouse gas emissions is not estimated.

In the Phase 2 greenhouse gas emission standard for heavy duty vehicles, EPA determined that glider vehicles could be treated as "new motor vehicles" under CAA Section 216(3). Previously owned engines used in glider vehicles were also deemed to be "new motor vehicle engines" and, therefore, would be subject to emission standards applicable to new engines. EPA determined that it had authority under Section 202(a) of the CAA to subject glider vehicles and glider kits to the Phase 2 rule.

In the proposed rule, EPA states that the glider industry petitioned EPA to reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits based on three principal arguments: (1) EPA is not authorized to regulate these under Section 202(a)(1); (2) EPA relied on unsupported assumptions to arrive at the conclusion that regulation of these is warranted and necessary'; and (3) reconsideration was warranted under Executive Order 13783. However, some comments on the proposed rule indicate that EPA does have authority and discretion to regulate glider vehicles, glider kits, and glider engines. The statutory authority and EPA's discretion to regulate based on such authority pertains to legal and policy questions that are not relevant to SAB review. However, the scope of potential technical matters that would

pertain to the possible range of allowable policy options is pertinent to the scope of a potential SAB review.

In the description of this planned action, EPA states that "there is uncertainty about what scientific work, if any, would support the FRM" and responded "N/A" with regard to questions about scientific work products, controversial issues, and related questions (see EPA response to Item 6(c) of the description of the planned action). EPA also responded "N/A" regarding peer review. It is clear that this proposed rule is based on claims and assumptions about glider vehicle emissions, safety, and cost that could be assessed via rigorous technical analysis, but it appears that EPA has not attempted to undertake relevant analyses. Furthermore, there is little mention of effects on public health in the proposed rule. EPA notes "Some of the benefits for children's health as described in that analysis [for the Phase 2 GHG emissions rule] would be lost as a result of this action." However, EPA has not attempted to quantify the loss of these or other benefits from a repeal that would very likely lead to increases in real-world emission rates from the long-haul heavy duty truck fleet. EPA takes the unusual position that an emissions regulation does not affect the existence of air quality standards, which although true seems irrelevant to the merits of this particular proposed rule. However, in raising the relationship between this proposed rule and the NAAQS, EPA fails to point out that in non-attainment areas the presence of high-emitting glider trucks would make attainment more difficult, especially with regard to NAAQS for ozone and PM. EPA seems to rely on states enacting future unspecified counter-measures under regulatory procedures that pertain to the NAAQS to offset the disbenefits of increased glider truck operational emissions of criteria pollutants or their precursors. EPA claims that "future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking." While there are uncertainties, EPA has over the years developed a variety of tools, methods, and data for estimating future emissions. Furthermore, uncertainty could be taking into account in emissions inventories based on scenario analysis, sensitivity analysis, quantitative uncertainty analysis or other suitable techniques. Questions regarding the life cycle implications of remanufacturing used powertrains versus manufacturing new powertrains could be assessed using a life cycle inventory analysis. EPA has made no attempt to conduct any of these analyses.

According to EPA's proposed rule, the petitioners "took particular issue with" EPA's assumption that NO_x and PM emissions of glider vehicles that used pre-2007 engines would be "at least ten times higher than emissions from equivalent vehicles being produced with brand new engines," claiming that EPA relied on no actual data to support this conclusion but related simply on the emission rates of the pre-2007. In the proposed rule, EPA mentions a study conducted by Tennessee Tech University that putatively reached a different conclusion. The TTU study was funded by Fitzgerald Glider Kits (FGK). Based on concerns about the validity of the study, the TTU faculty senate approved a resolution on January 30, 2018 regarding the Fitzgerald-funded study calling for the university president to "suspend all present research activities and other associations with Fitzgerald," and other provisions. In a letter from Tennessee Tech president Philip Oldham to EPA Administrator Scott Pruitt, dated February 19, 2018, the university advised the Administrator that the University is "actively pursuing a peer review of the report," and is also "investigating an allegation of research misconduct related to the study," and requested that EPA "withhold any use or reference to said study pending the conclusion of our internal investigation." On February 26, 2018, Fitzgerald Glider Kits wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from

disclosure. Thus, the TTU study cannot, in its present form, be used as a basis for rule making. Furthermore, if EPA intends to make use of the TTU study, or any revised version of it, independent evaluation by the SAB would be strongly indicated.

The EPA's original assertion that glider trucks using pre-2007 engines would have emissions of NO_x and PM at least ten times higher than emissions from equivalent vehicles being produced with brand new engines is well-supported by numerous measurement studies of heavy duty vehicles with powertrains certified under emission standards in effect now compared to those in effect prior to 2007. In particular, prior to 2007, heavy duty truck emission standards were not sufficiently stringent to require the use of diesel particulate filters (DPFs) for PM control nor selective catalytic reduction (SCR) for NO_x control. In contrast, under standards now in place that apply to new vehicles, heavy duty trucks are typically equipped with both DPF and SCR, as well as related technologies such as diesel oxidation catalysts, exhaust gas recirculation, and ammonia slip catalysts.

On November 20, 2017, just four days after the proposed rule was announced, EPA reported results of chassis dynamometer tests of a 2016 model year Peterbilt 389 sleeper cab tractor and a 2017 MY Peterbilt 579 sleeper cab tractor that were produced as glider vehicles using pre-2002 remanufactured engines. The emissions from these two glider vehicles were compared to those from conventionally manufactured 2014 and 2015 MY tractors. The latter include cooled exhaust gas recirculation, DPF, and SCR systems. Under highway cruise conditions, the glider vehicles had NO_x emissions 43 times higher and PM emissions 55 times higher than the conventionally manufactured trucks. Under transient conditions, the NO_x and PM emissions were 4-5 times higher and 50-450 times higher, respectively. The HC and CO emissions were also significantly higher than for the conventionally manufactured trucks. The CO_2 emission rates were lower for the glider vehicles than for the conventionally manufactured trucks, with the relative difference depending on the driving cycle. There is generally a trade-off between NO_x and CO_2 emissions. However, there are also opportunities to tune 2010 and later MY newly manufactured engines for improved efficiency, which is an area that would benefit from more study.

In the proposed rule, EPA mentions that petitioners contend that glider vehicles offer environmental benefits related to the use of recycle materials and claimed that glider vehicle greenhouse gas emissions are less than those of (putatively new) OEM vehicles. This claim, while interesting, would require a more systematic assessment involving a life cycle inventory approach. Such an approach would quantify the GHG emissions of the truck life cycle, including manufacture, operation, and disposal/recycling. Such an approach would enable quantification of the difference in greenhouse gas emissions from glider vehicles versus those for a newly manufactured truck. The scope of assessment of GHG emissions should include not just CO_2 but other primary or secondary GHGs related to truck life cycle emissions. For example, VOC and NO_x emissions from trucks lead to the formation of tropospheric ozone, which is a GHG. EPA did not offer any life cycle inventory analysis or results as part of the proposed rule.

In its proposed rule, EPA stated that it "solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the

older trucks they would replace." It is highly unusual that EPA would propose a rule related to air pollutant emissions without including a technical analysis of the impact that the proposed rule would have on air pollutant emissions. According to the International Council for Clean Transportation, EPA's proposed regulation would lead to excess emissions of 1.5 million tons of NO_x and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage (Muncrief, 2017). These estimates are given as an example and would need to be evaluated. EPA did not offer its own assessment of the impact on public health of the proposed rule.

This proposed action is highly controversial in that it would be an end-run around new truck emission standards. If gliders are not subject to standards currently in place that apply to conventionally manufactured new vehicles, then older power trains could be rebuilt and installed in new glider kits as a substitute for purchase of new trucks. This could mitigate against the effect of fleet turnover as a factor that would lead to longer term reductions in real-world emissions and could lead to higher real world emissions, worsened air quality, greater human exposure to truck-related air pollution, and increased adverse health effects compared to no repeal. There appears to be no provision in the proposed rule that would prevent the widespread substitution of glider trucks in lieu of new trucks, such as a cap on the number of glider vehicles that could be sold in a given year. Although EPA attempts to frame the comparison as being between a glider truck and an old truck with a power train that is not rebuilt, an equally if not more pertinent comparison is between the glider truck and a new truck whose purchase was avoided, or between a glider truck and a used truck of the same purchase price. EPA did not request comments on these comparisons, but instead focused on whether a glider truck would have lower emissions than an older truck it would displace and whether a glider truck would be safer than an older truck, presumably with the same powertrain. EPA did not ask for comment on whether the use of an old powertrain in a new chassis would lead to life extension of the old power train and thus displace emission reductions that would otherwise have accrued from fleet turnover to newer trucks. At least some public comments, such as by Volvo, called into question the notion that a glider truck would offer the full safety benefits implied by EPA, especially compared to an avoided new truck.

Given that EPA has a statutory mandate to protect public health, it is noteworthy that the health benefits of existing NO_x and PM emission standards for heavy duty diesel vehicles are substantial. These are the standards to which glider vehicles would otherwise be subject in the absence of the proposed repeal rule. For example, according to a Regulatory Impact Analysis (EPA420-R-00-026), the Final HD Engine/Diesel Fuel Rule that went into effect in 2007 has annual compliance costs of $4.2B and monetized net benefits of $66B, largely based on avoided premature deaths related to reduced human exposure to particulate matter emitted from diesel trucks. Thus, from a scientific perspective, there are potential health benefits to reductions in operational emissions of heavy duty diesel vehicles that are significant and that should be considered, although with compliance costs.

In 2016, in response to comments on the greenhouse gas emissions and fuel efficiency standards for medium- and heavy-duty engines and vehicles, EPA estimated that each model year of glider vehicle sales would be associated with up to 1,600 premature deaths over the lifetime of the vehicles, based only on $PM_{2.5}$ emissions and sales of 10,000 gliders per year.

In response to fact-finding questions (see Attachment C), the EPA Office of Air and Radiation provided the following response:

> "We appreciate the detailed questions that the SAB has asked with regard to EPA's recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule."

The work group assessment of this response is the following:

- While "many of the topics" may have been "raised" during the comment period, not all of them were. For example, the withdrawal of the Tennessee Tech. University by Tennessee Tech. University did not occur until after the public comment period ended.
- A topic being "raised" may not be the same as a topic being objectively analyzed.
- The scientific and technical statements in the proposed rule, and the scope of analyses in the proposed rule, are dubious and highly questionable.
- Whether the proposed rule hinges on "legal authority" is beyond the scope of the SAB.
- Although EPA claims that the proposed rule hinges on "legal authority," the proposed rule is clearly predicated on various scientific and technical claims that are of unknown or dubious merit, including a study cited by EPA that has since been withdrawn by its performing organization.
- Given the various scientific and technical claims in the proposed rule, which appear to be based on stakeholder comments or draft studies that lack objective analysis and peer review, it is in the best interests of EPA and prudent for the SAB to engage in a review process to assure the credibility of scientific and technical information that is put forth in the rule.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

Based on the controversy of EPA proposing a rule in part based on a study that has been withdrawn by its authoring institution, the omissions of pertinent technical content from EPA's proposed rule, the lack of clear pedigree of information that EPA cites in its proposed rule, the broad implications of the proposed rule that could rollback reductions in emissions of pollutants that are harmful to public health, and the myriad of technical issues involved related to life cycle emissions, it is appropriate for the SAB to conduct a review of the technical and scientific issues pertaining to this proposed action.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements
2. **RIN Number:** 2070-AK43
3. **EPA Office originating action:** Office of Chemical Safety and Pollution Prevention, Office of Pesticide Programs (OPP)
4. **Brief description of action and statement of need for the action:**

   EPA published a final rule to amend the Worker Protection Standard (WPS) regulations at 40 CFR 170 on November 2, 2015 (80 FR 67496). Per Executive Order 13777, EPA solicited comments this spring on regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda efforts. EPA received comments suggesting specific changes to the 2015-revised WPS requirements which are being considered within the Regulatory Agenda efforts. In consideration of those comments, EPA will solicit public input on specific revisions to the rule.
5. **Timetable:**

   OMB review start: 5/10/2018

   FR Publication for comment: 9/14/2018
6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   No scientific work products have been developed to inform decisions regarding the planned action. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires EPA to provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any scientific issues that are related to these rules. The Pesticides; Agricultural Worker Protection Standard draft final rule was submitted to the FIFRA SAP. The SAP waived their review on June 24, 2015 because the proposed revisions are administrative in nature and do not contain scientific issues that require the SAP's consideration. The FIFRA SAP will be provided copies of the 2018 draft revisions to the rule.

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

   N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

N/A

6(d). Peer review:

N/A

Recommendation from the SAB Work Group

Name of planned action: Name of action: Pesticides: Agricultural Worker Protection Standard: Reconsideration of Several Requirements. (RIN 2070-AK43)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues		X	
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit any further SAB consideration.

Rationale: Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

EPA Description of Planned Action

1. **Name of action:** Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter

2. **RIN Number:** 2060-AS35

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards

4. **Brief description of action and statement of need for the action:** Under the Clean Air Act, the EPA is required to review and, if appropriate, revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On April 3, 2012, the EPA published a final rule in which the Agency determined to retain the current secondary standards (welfare-based) for nitrogen oxides (NOx) and for sulfur oxides (SOx). On January 15, 2013, the EPA published a final rule in which the Agency retained the secondary standards for particulate matter. This review of the air quality criteria and secondary standards for ecological effects of SOx, NOx and particulate matter includes the preparation of an Integrated Science Assessment, Risk/Exposure Assessment, and a Policy Assessment by the EPA, with opportunities for review by the EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the standards. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.

5. **Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle of the NAAQS. There is no court-ordered schedule for this review.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action. For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis). Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with

opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP, ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Reviews of the NAAQS rely on assessment documents that are designated as "highly influential"

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information:
https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC

Recommendation from the SAB Work Group

Name of planned action: Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action will undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur. CASAC is a FACA committee. The Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS.

EPA Description of Planned EPA Action

1. **Name of action:** Fuels Regulation Modernization - Phase 1

2. **RIN Number:** 2060-AT31

3. **EPA Office originating action:** Office of Air and Radiation – Office of Transportation and Air Quality

4. **Brief description of action and statement of need for the action:**

   "Fuels Regulation Modernization" will streamline and modernize EPA's existing fuels regulations under 40 CFR part 80. The purpose of this effort is to update EPA's existing gasoline, diesel, and other fuels regulations to improve the clarity and efficiency of the regulations, reduce burden, and improve implementation. This action will reduce compliance costs for stakeholders as well as EPA, while helping to improve overall compliance assurance and maintaining environmental performance. In this action, EPA will streamline the existing fuels regulations under 40 CFR part 80 – by deleting expired provisions, consolidate redundant compliance provisions (e.g., duplicative registration requirements that are required by every EPA fuels program), removing unnecessary and out-of-date requirements – and replace them with a single set of provisions and definitions that will apply across all gasoline, diesel, and other fuels programs currently under 40 CFR part 80. This action will simply be an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones.

5. **Timetable:**

   No statutory or legal deadlines apply to this action. As noted in the Regulatory Agenda (which provides anticipated rule *publication* date) and the table below, we expect to issue a proposed rule by the end of calendar year 2018, to be published by January 2019; similarly, we expect to issue a final rule by the end of calendar year 2019, to be published by January 2020.

Action	Anticipated Publication Date
NPRM	January 2019
Final Rule	January 2020

6. **Scientific products that will inform the action and plans for peer review:**

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
We do not anticipate that there will be any scientific work products developed to inform decisions regarding this planned action. This action is not proposing any new fuel standards, but merely streamlining the regulations that accompany the existing standards to reduce unnecessary implementation and compliance burden.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
This action will not involve any highly influential scientific assessment (HISA) or influential scientific information (ISI), nor will it involve precedential, novel, and/or controversial issues. There are no legal or statutory triggers for a peer review.

6(d). Peer review:
No peer review is planned for this action.

Recommendation from the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science

Name of planned action: Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?	X	
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks			X
Relates to emerging environmental issues			X
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The planned action does not merit further review by the SAB.

Rationale: This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones". No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Attachment C

Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda May 18, 2018

The Science Advisory Board Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science held a fact-finding teleconference on April 20, 2018. EPA offices were provided questions to clarify and seek additional information on the planned actions in the Fall 2017 Semi-annual Regulatory Agenda published on December 14, 2017. This attachment summarizes the Work Group's findings.

The Work Group submitted questions to the Office of Policy and Office of Air and Radiation. The questions and responses are provided below. Attendees were:

Dr. Al McGartland, Office of Policy
Dr. Elizabeth Kopits, Office of Policy
Ms. Caryn Muellerleile, Office of Policy
Members of the Work Group
Thomas Carpenter, DFO, SAB Staff Office

Questions for the Office of Policy

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

The SAB Work Group notes that this action is in a pre-rule stage and is months away from an anticipated Advanced Notice of Public Rule Making (ANPRM). The Work Group submits these questions to gain a better understanding of the scope that might be covered in this effort to improve consistency and transparency in analyzing costs and identify issues the agency may wish to address in its ANPRM. We do recognize that the nature and scope of one regulation, as compared to another, may result in appropriate differences in the way costs are analyzed.

Could the staff give us some more examples of cost standards that have been applied inconsistently in the past that might be a focus of this effort, and made more consistent?

What might be examples of past 'consideration of costs through non-transparent actions' that might be addressed and made more transparent?

The Work Group has some specific example areas where we would like to know whether these are the kinds of concerns that might be addressed in the planned action.

EPA program offices vary, for example, in assumptions about whether and how technology costs due to regulation will influence the market. Sometimes it is assumed (implicitly) that consumers will bear the cost and simply pay higher prices for products. In other cases, estimates are made of price elasticities, and impacts on sales in relevant markets.

Will there be concern with how new technologies to meet a regulation impact maintenance and repair expenses?

Will there be consideration of non-pecuniary vs. pecuniary costs. EPA program offices vary in the extent to which non-pecuniary costs of regulations are identified and quantified. There may also be differences between programs in how hedonic methods are used to quantify and monetize nonpecuniary costs of a regulation.

Is there concern with the Impacts of the regulation on the longevity of older products and processes. This may be when a regulation on a new product or process induces market actions to lengthen the life of an existing process or product that may have costs with respect to emissions, safety, energy consumption, or other key indicators.

Is there concern with variation in the accounting for projected cost savings from economies of scale, learning and innovation? Conversely, dealing with scale costs, where smaller firms suffer disproportionate costs?

Agency Response:
Drs. McGartland and Kopits provided an oral response to the questions and discussed the planned action with Work Group members. They noted the planned action is in the early stages of development and the scope is broad to include factors the identified by stakeholders on the methods and factors considered in rulemaking and determining the level of standards. The agency hopes to use this information to make regulatory cost considerations more consistent, reliable, and transparent. In general, the questions posed by the Work Group are somewhat specific and they can't address them in detail at this stage in the rulemaking.

The EPA staff provided an example of what considerations may be evaluated in the planned action. They noted that affordability is a metric that varies across statutes. For example, the Office of Air may evaluate affordability in terms of number of plants that may need shut down to meet a proposed standard to determine if it is practically achievable. Under the Safe Drinking Water Act, the agency evaluates affordability on a completely different context as specified in the Act and the Clean Water Act is different than the drinking water analysis. They noted the agency has not articulated the concept of affordability in a meaningful way except for perhaps in the affordability language of the drinking water program. That is, when evaluating the affordability of an action how are the cost and benefits evaluated across programs. Another example is in the water program a comparison between toxic wieght and cost effectiveness number as an appropriate evaluation of the cost and benefit of a standard. The agency could consider whether this approach could be used as a decision rule or a factor to consider in decision making to be applied consistently within the program or in other programs.

A Work Group member asked if an inventory of metrics has been developed? The agency noted that some of this work is ongoing. They anticipate that the response to the ANPRM will greatly inform next steps. Some has been started but noted that the ANRPM is a tool to hear from stakeholders how this applies in different programs and consider how important providing a certainty to the regulated community.

Another Work Group member noted the Agency's responses describe the action as more in the legal, policy and judgement arena and not the identification of cost. The rule may be outside the scientific

and technical purview of the SAB. Another member noted that the EPA may take on more scientific and technical aspects of methodological cost analysis or data issues that are appropriate for the SAB to provide advice.

EPA staff noted the action is under review at the Office of Management and budget and the advanced notice proposed rulemaking (ANPRM) is not yet published. They characterized the agency as being in fact finding mode with the ANRPM and using the data and information they garner from public comments to decide on next steps for the planned action.

They noted that the development of cost in regulatory actions are outlined in OMB circular A-4[1] and the EPA's Guidelines for Preparing Economic Analyses [2].

Questions for the Office of Air and Radiation

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77)

On April 2, 2018, EPA announced that it will "initiate a rulemaking process whose outcome will be a final agency action". The April 2, 2018 final determination of the Mid Term evaluation was based primarily on public comments. Does EPA intend to use data, information, models, studies, or other information as part of the rulemaking process? If so, which of these are influential scientific information (ISI) or highly influential scientific information (HISI)? For ISI and HISI, what will the Agency do to obtain the required peer review?

In the April 2, 2018 notice, EPA identified seven key factors that motivate a finding that the current standards are "not appropriate" and that, presumably, will be explored further in reviewing and revising the standards. These factors include the following:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
5. The impact of the standards on the automobile industry;
6. The impacts of the standards on automobile safety;
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

[1] OMB circular A-4 is available at: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf
[2] https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses

What additional data, models, studies, measurements, reports, or other information does EPA plan to develop pertaining to these factors, which of these will be ISI or HISI, and what are the plans for peer review for ISI and HISI?

Although the purpose of the standards is to protect public health and the environment based on an endangerment finding, the Administrator's final determination of the MTE does not mention the need for updated information regarding the benefits to the environment, public health, and public safety of reducing GHG emissions from light duty vehicles or how such information would be considered in reviewing and revising the standard. Will EPA develop quantitative or qualitative assessments of the effect of alternative standards on GHG emissions and their impact on public health and safety? Will EPA consider updated information regarding other benefits of the standard, such as co-benefits from reduction of emissions of criteria pollutants or their precursors? If so, which of these will be ISI or HISI? How will ISI or HISI be reviewed?

EPA indicates that the social cost of carbon has changed since the last review. How will EPA update the social cost of carbon and how will this be used in the rulemaking?

How will EPA quantify the "negative effects of higher vehicle costs"?

Has EPA considered that the use of banked credits may be part of product development cycles and an expected practice that allows manufacturers the lead time to develop new model generations?

Is EPA aware that national sales of plug-in hybrid electric vehicles and battery electric vehicles have increased from 2015 to 2016, and from 2016 to 2017, contrary to statements made in the final determination for the MTE?

In the Final Determination of the MTE, EPA did not acknowledge that the National Research Council found the analyses conducted by EPA and NHTSA "to be thorough and of high caliber". Does EPA intend to re-interpret or update any of its own reports, papers, models, and data? If so, which ones? Is EPA aware that, among other findings, the NRC found that EPA did not take full account of the range of technology options available to manufacturers that would enable compliance with the standards?

Given that new light duty vehicle sales in the last three model years have been over 17 million annually, higher than levels in the five years prior to the 2008 recession, what is the evidence that lack of affordability (relative to prior years) has deflated new car sales?

Although several automobile manufacturers submitted comments regarding lack of consumer interest in high efficiency vehicles, what have the manufacturers done to attempt to garner such interest? Is there an opportunity for automobile manufacturers to adjust their marketing campaigns to help consumers appreciate the benefits of higher efficiency cars, including reduced total cost of ownership over a five-year period? Similarly, are there opportunities for EPA to undertake synergistic initiatives that would help raise public awareness of and interest in higher efficiency vehicles?

Has EPA been able to independently verify automobile manufacturer claims regarding underestimated direct technology costs, indirect cost multipliers, and cost learning curves? If not, how will EPA independently assess such claims?

Does EPA acknowledge that the impacts of climate change and air pollution can accrue differently and typically more severely to low income households?

Many new technologies undergo several stages during diffusion and adoption that can be described as an "S" curve for market penetration. Has EPA considered that the currently low market shares of electric drive vehicles might be an early stage in the technology adoption process for these vehicles? In addition to identifying potential barriers to adoption, will EPA consider how such barriers can be overcome to enable realization of the full benefits of the standards to the extent possible?

Clearly, fuel prices today are lower than expected when EPA conducted analyses several years ago. However, it is also well-known that Energy Information Agency projections are often not consistent with future realities. Thus, rather than base an analysis on a single projection, has EPA considered using an ensemble of projections, or using information from assessments of projection errors (from recent papers in the literature) to develop uncertainty bounds for such estimates?

Who funded the Trinity-NERA study that is cited by EPA, has this study been peer-reviewed and, if so, who and by whom?

Who funded the Indiana University study that is cited by EPA? Although the Indiana U. study has been reviewed, the review was organized and conducted by the study itself. If this study is to be used as a basis for the rulemaking, will there be further independent review organized by EPA?

What is the schedule for the rulemaking process to review and revise the standards?

> **Agency Response:**
> We appreciate the detailed questions that the SAB has asked with regard to various analyses that could be considered to inform the forthcoming NPRM. EPA will continue to assess these issues as we develop the proposed rule.
> EPA has not yet announced a schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards.

<u>Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)</u>

Does EPA intend to continue to use the study conducted by Tennessee Tech University cited in the proposed rule that was funded by Fitzgerald Glider Kits and subsequently withdrawn by the TTU president? If so, how will EPA obtain independent peer review of this study?

Does EPA intend to use its own November 20, 2017 chassis dynamometer study in which measured emissions of two glider vehicles were compared to two newly manufactured vehicles? Is EPA aware that its own study found that NO_x emissions were at least four times higher for transient operation and 43 times higher under highway conditions, and that PM emissions were 50 to 450 times higher under transient conditions and 55 times higher under highway conditions? Will this information be taken into account and, if so, how? Will EPA conduct further studies to quantify the emissions of glider vehicles compared to conventionally manufactured trucks? For example, studies based on in-use measurements

with portable emission measurement systems would be informative to a determination of the real-world emissions impact of glider vehicles.

How will EPA quantify the effect of the proposed repeal on GHG, NO_x, PM, CO, and HC emissions? What data, models, or other information will be used? What efforts will be made to obtain appropriate peer review in the case of ISI or HISI?

Is EPA considering imposing a cap on the total number of glider vehicles, glider kits, and glider engines that are allowed to be sold annually in the U.S.? If so, what caps are being considered and on what basis?

EPA claims that glider vehicles are 25% lower cost than newly manufactured trucks. What is the basis for this claim? Please provide the relevant documentation of this claim. Has this information been peer reviewed?

EPA states that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. What is the basis for this statement? For example, has EPA conducted life cycle inventory analysis? Please provide the relevant documentation. Has this information been peer reviewed?

EPA states that "some of the benefits for children's health as described in that analysis would be lost as a result of this action." What is the quantitative estimate of these lost benefits and its basis?

Would the operation of glider trucks, which have higher NO_x and PM emissions than a conventionally manufactured truck with the same chassis, create challenges for NAAQS attainment in areas that are currently in non-attainment?

Why is that "future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking" any more so than for future emissions for any other source category for which EPA has routinely developed estimates in other regulatory actions? Why not account for uncertainty in estimates either through sensitivity or uncertainty analysis?

Is EPA aware of an assessment by the International Council on Clean Transportation that this proposed repeal would lead to excess emissions of 1.5 million tons of NO_x and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage? Has EPA evaluated this study or conducted its own assessment of the emissions and health impacts of the proposed repeal? Is there a precedent for EPA to undertake a regulatory action that increases emissions and harms public health?

Has EPA considered the impact that repeal would have on the reduced turnover of old power trains in the heavy duty truck fleet and its long term impact on emissions?

With regard to safety, public commenters including Volvo have provided details on ways in which glider vehicles differ from conventional newly manufactured trucks. Will EPA take into account these differences and, if so, how?

What is the current status of this rulemaking? What is the schedule for the subsequent steps? Given the controversy regarding the TTU study and the questions this raises regarding the validity of the

underlying basis for this regulatory action, will EPA provide additional opportunities for public comment and public hearing?

Agency Response:
We appreciate the detailed questions that the SAB has asked with regard to EPA's recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule.

State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

The proposals to repeal and replace the Clean Power Plan (in the Spring 2017 Regulatory Agenda) appear based on an interpretation that Best System of Emission reduction (BSER) determinations under CAA Section 111(d) must be limited to controls on single sources. The Agency has taken many past actions to reduce emissions from EGUs or other large source categories which employ multi-source strategies - under 111 and other sections of the Act. For example, the 1995 Emission Guidelines for Large Municipal Waste Combustors (allowed NOx emissions averaging and trading), the 2005 Clean Air Mercury Rule (allowed inter-source and interstate trading), were issued in whole or in part under 111(d). Trading provisions have been successfully employed under other sections of the Act, such as in the 1998 NOx SIP call, the 2005 CAIR, and 2011 CSAPR, where they resulted in large cost savings compared to source-specific controls. Does the Agency have plans to employ other (than 111(d)) sections of the Act to further reduce EGU GHG emissions? Does the Agency plan to repeal other multi-source trading programs that have been issued under 111(d)?

The extent to which the ANPRM proposes or seeks feedback on specific single-source controls (heat rate/efficiency improvements); a range of source-specific controls (that might include fuel switching, co-firing, carbon sequestration, etc.); or multi-source controls (including averaging, trading, least emissions dispatching, etc.) is not clear. The ANPRM includes various trading provisions in the discussion of State implementation options. Is the intended premise that the EPA is limited to proposing BSERs which are limited to individual sources, while States may consider more cost-efficient multi-source strategies during implementation? Could the Agency provide some clarification on exactly what kinds of single-source and multi-source options may be considered at the EPA and State levels?

If the CPP is repealed and replaced by an alternative EGU GHG reduction program under which BSER is limited to marginally effective single-source controls like heat rate improvements, the resulting GHG reductions (and avoided mortality from reduced PM) will be much smaller than those that would have resulted from the original CPP. GHG emissions from US fossil fuel burning EGUs are larger than those from any other US source category, and represent the largest opportunity for meaningful near-term US GHG emissions reductions - especially if addressed in a cost efficient manner that includes trading, least emissions dispatching, renewable energy source replacement and other multi-source options. Is the Agency considering other EGU GHG control measures that will result in emissions reductions

comparable in magnitude and timing to those in the original CPP? Does the Agency have any information indicating that the urgency for near and long-term action to reduce GHG emissions has diminished since the original CPP was enacted?

This proposal to replace the CPP is dependent on a previously proposed action to repeal the CPP - which in turn is based on an August 2015 Regulatory Impact Analysis (RIA) that uses methods, assumptions and techniques which differ substantially from those employed in previous EPA RIAs, and which do not appear to have been subject to scientific peer review. Although the RIA was conducted to support the CPP repeal, this work product also seems especially critical to the effective design of a replacement plan, since it represents the Agency's most recent assessment of the costs and benefits associated with reductions of GHG and associated pollutant emissions from EGUs. Please describe the Agency's plans to conduct an external peer review to assure the quality of this important and influential RIA?

Agency Response:
The questions that you ask related to both the use of emissions trading/averaging under a 111(d) program and the quantification of benefits under a rescission or replacement to the Clean Power Plan are both questions that the agency is actively considering as part of rulemaking actions. The agency has not made any final determinations about how it intends to proceed on either of these issues. The Agency's work to review the Clean Power plan is here: https://www.epa.gov/energy-independence and will be updated when we announce future actions.

politics

EPA Science Board Rebukes Pruitt's Use of Science to Deregulate

By
Eric Roston
Updated on

- Advisory board votes to review agency's decision on rollbacks
- Panelists also want to track controversial EPA science plan

EPA Administrator Scott Pruitt

Photographer: Andrew Harrer/Bloomberg

The Environmental Protection Agency's Scientific Advisory Board delivered a rebuke to Administrator Scott Pruitt by voting Thursday to review the agency's proposed rollback of car efficiency rules and several other deregulatory actions.

It will scrutinize Pruitt's move last year to review the Clean Power Plan, the first nationwide attempt to regulate climate pollution from existing power plants and a high-profile target of Pruitt and President Donald Trump.

Other actions it will review include EPA reviews of greenhouse gas rules for new power plants, pollution from renovated or new oil and gas facilities, and a repeal of emissions standards on so-called glider trucks that are retrofitted with rebuilt diesel engines lacking modern emissions controls.

The 44-member panel also unanimously decided to write Pruitt a letter saying it wanted to review his controversial proposal in April to limit the kinds of scientific research the agency can base regulations on.

"The leadership of the board was chosen by Pruitt himself, so their decision today is a sharp rebuke of his leadership and this dangerous proposal," Ana Unruh Cohen, managing director of government affairs at the Natural Resources Defense Council, said in an email after the board's vote.

"EPA's Science Advisory Board provides valuable independent expertise that informs and improves EPA's actions," Pruitt said in a statement released on Thursday night. "We look forward to the board's feedback and insight that develop from this meeting."

Sparring at Meeting

The board is a panel of outside researchers and experts who review the quality of the technical information the EPA relies on, gives advice on broad scientific matters and examines agency research programs.

Earlier: EPA's Own Science Advisers to Rebuke Agency Over Auto Rollback

The body went 50 minutes beyond its slated time, as board members sparred over issues ranging from the need for scientific evidence in demonstrating harm from sooty air pollution, the agency's multi-step dismantling and replacement of the Clean Power Plan and the EPA's tinkering with assumptions underlying the way the federal government estimates the damages attributable to each metric ton of carbon dioxide emitted into the atmosphere.

In a proposal sent Wednesday to the White House Office of Management and Budget, the EPA and National Highway Traffic Safety Administration jointly recommended rolling back the automobile efficiency rules established under the Obama administration. It also calls for revoking the waiver from federal standards that California uses to regulate greenhouse gas emissions from vehicle tailpipes, according to a person familiar with the matter.

(Updates with Pruitt statement in sixth paragraph.)

Attachments 6-11
Testimony before the EPA Science Advisory Board

Testimony of Dr. Dave Cooke, Sr. Vehicles Analyst, Union of Concerned Scientists, to the Environmental Protection Agency's Science Advisory Board—May 31, 2018

My name is Dr. Dave Cooke, Senior Vehicles Analyst of the Union of Concerned Scientists. The Union of Concerned Scientists is an organization which works to ensure that policy is based on the best available science, so I very much appreciate the opportunity to speak with you today.

EPA has a responsibility under the Clean Air Act to control the emissions of harmful pollutants, including smog-forming nitrogen oxides and greenhouse gases like carbon dioxide. Recent regulatory actions taken by the agency are not based on the best available data, putting these critical protections at risk. I urge the Science Advisory Board to exercise its authority to correct these failings and review these actions to address these shortcomings and ensure that the administration is upholding its legal obligations to safeguard human health and the environment.

The focus of my work at UCS is on emissions from both light- and heavy-duty vehicles, so my testimony focuses on the shortcomings in the administration Mid-Term Review of Light-Duty Vehicle Standards and its Glider Vehicle Regulation. However, many of the shortcomings in these rules apply across a number of the administration's recent actions, including an over-reliance on industry comments and ignoring large amounts of publicly funded data and analysis from the EPA itself.

Mid-term Evaluation

With respect to the Mid-term Evaluation, I agree with many of the concerns raised by the SAB Workgroup, including that the agency's final determination "relied extensively on public comment without…validation" and did not account for any direct or indirect impacts on emissions or public health.[1] However, there are a number of specific flaws which bear further scrutiny.

In the description of the planned EPA action provided to the SAB (2060-AT77), the agency describes in detail a wide assortment of peer-reviewed literature and analysis which were intended to inform the Midterm Evaluation.[2] Not a single one of the 25 peer-reviewed publications[3] or the 6 additional peer-reviewed reports[4] identified by EPA as relevant to the mid-term evaluation were cited by the Administrator in the Final Determination. Results from the agency's transparent, publicly available, and peer-reviewed ALPHA and OMEGA models were completely ignored—in fact, the only mention of EPA's modeling is analysis provided by the Alliance of Automobile Manufacturers and Global Automakers which the Administrator claimed "rais[ed] several technical issues" in "several new studies" despite multiple EPA meetings responding to the critiques and a thorough EPA memo rebutting the analysis uploaded to the docket in November 2017,[5] all of which was again ignored by the Administrator in the Final Determination.

This, of course, outlines the fundamental flaw with the Administrator's Final Determination—a complete and total disregard for analytic reasoning. As scientists and experts on this Board are well aware, when faced

[1] SAB Work Group Recommendations on the Fall 2017 Semi-Annual Regulatory Agenda, p. B-18.
[2] *Ibid.*, pp. B-12—B-16.
[3] Full list available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#publication.
[4] Full list detailed in SAB Work Group, pp. B-13, B-15—B-16: EPA-420-R-15-006, EPA-420-R-16-018, EPA-420-R-15-012, report on EPA's ALPHA model response surface equation, report on consumer willingness to pay for vehicle attributes, and content analysis of professional auto reviews.
[5] Memo to the docket from Kevin Bolon, EPA, November 24, 2017, regarding stakeholder meeting with Auto Alliance and Global Automakers and their contractor, Novation Analytics, and EPA Technical Response to Assertions of 'ALPHA-to-OMEGA Bias'. EPA-HQ-OAR-2015-0827-10988

with competing sets of conclusions, analytic rigor and critical thought must be exercised to determine where the truth lies. No such analysis is provided in the Final Determination—instead, it reads like a third grader's book report, summarizing large chunks of public comment verbatim without any substantive explanation of the material, despite acknowledgement of contradictory evidence there-in. This is in extreme contrast to the Final Determination filed in 2017—in 2017, the agency finalized a 33-page determination accompanied by 174 pages of responses to comments on a 268-page proposal based on 719 pages of technical support. On April 2, 2018, the Administrator finalized a 38-page determination with no accompanying justification, based largely upon responses to a 3-page proposal with, again, no accompanying technical data.

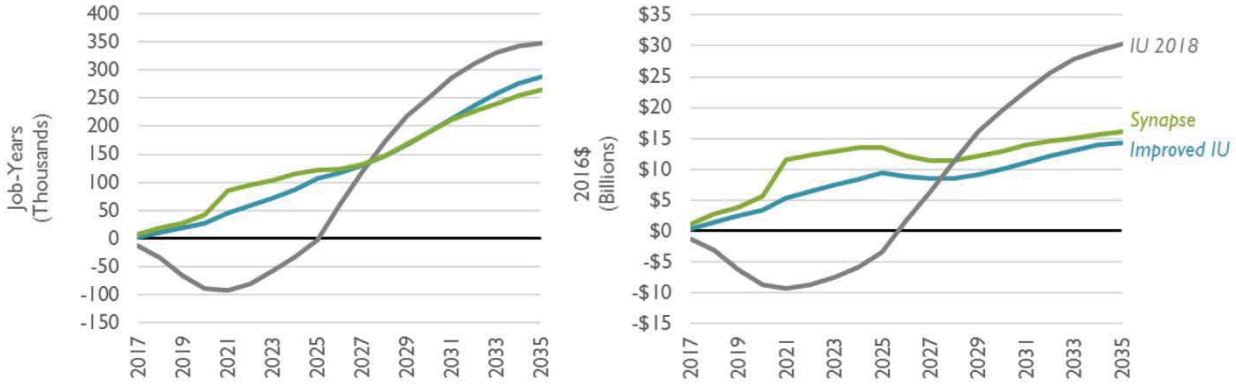

FIGURE 1. (left) Jobs and (right) Gross Domestic Product resulting from the macroeconomic modeling of 2017-2025 state and federal emissions standards (Allison, Hall, and Ackerman 2018). The gray line is based upon the assumptions used in the REMI modeling by Indiana University (Carley, et al. 2017); the blue line incorporates the assumptions of the total-cost-of-ownership modeling in Carley et al. 2017 ignored in their macroeconomic analysis; and the green line reflects updated technical costs and increased valuation of fuel savings by consumers, as described in Allison, Hall, and Ackerman 2018.

Perhaps this example best underscores the superficiality of the Administrator's Final Determination: the ***only*** peer-reviewed report cited by the Administrator in his Final Determination was misrepresented, as noted by the authors of the report.[6] Contrary to both the industry-funded Trinity Consulting/NERA report and the deeply flawed study by the Center for Automotive Research claiming potential losses of more than 1 million jobs which the Administrator pointed to in the Final Determination, despite extensive criticism and responses by EPA technical staff and public commenters, the economic analysis by IU concludes that while there may be some short-term impacts related to both state and federal vehicle emissions regulations, the long-term benefits in both jobs and GDP significantly outweigh any short-term losses. Furthermore, even more recent analysis shows that even those short-term impacts are overstated, since they are largely the results of inconsistencies between two models used in the report, including assumptions that consumers ignore fuel savings completely when purchasing a vehicle and that consumers do not finance their vehicle purchases (Figure 1).[7] This most recent report was submitted to the agency as part of the OIRA review process of the Final Determination under Executive Order 12866[8] and was summarily ignored by the agency in its Final Determination.

[6] The report in question is Carley, et al., 2017. Authors responded to the citation in the Final Determination in a letter to Administrator Pruitt on May 3, 2018, uploaded to the docket as EPA-HQ-OAR-2015-0827-11416.
[7] Allison, A., J. Hall, and F. Ackerman. 2018. Cleaner Cars and Job Creation: Macroeconomic impacts of federal and state vehicle standards. Online at http://synapse-energy.com/cleaner-cars-and-job-creation.
[8] Meeting with the Office of Management and Budget, March 30, 2018. Attendees: Jim Laity, Scott Burgess, Kim Olson, Mary Fitzpatrick (OMB); Mike Olechiw, Jeff Alson, Tad Wysor (EPA); Dave Cooke, Alyssa Tsuchiya (UCS); Ann Mesnikoff (ELPC); Alice Henderson, Martha Roberts (EDF); Margarete Strand (Public Citizen); Ben Longstreth, Luke Tonachel (NRDC); and Alejandra Nunez (Sierra Club).

This and many other shortcomings are why the Science Advisory Board should review the fundamentally flawed technical basis for the Administrator's Final Determination, ensuring that the Final Determination and any potential ensuing regulatory activity are based upon rigorous and thorough analysis of the best available data, not simply liberal quotation of public comments.

The Board has raised a number of issues which will require more careful scrutiny and which I would like to briefly touch upon:

- Rebound effect: To assess this, the EPA commissioned an independent, peer-reviewed report by Kenneth Small and Kent Hymel which briefly discusses the literature and presents updated empirical estimates of the short- and long-term rebound effect.[9]
- Fleet turnover: Assessing fleet turnover inherently relies upon modeling of consumer choice, which has historically been found to yield very little predictive capability, with one recent analysis even indicating that the best year-to-year predictor is simply last year's relative marketshare rather than any complex model.[10] Moreover, both EPA and NHTSA have examined the potential for such inclusion in the past and have also found little evidence of predictive potential, noting that "the model's predictions are unlikely to be as precise as is suggested from the model output,"[11] and found only at most short-term (2-3 model years) forecasting of market response, with difficulty predicting longer-term responses due to the need for projecting changes in household characteristics.[12]
- High octane fuels: While the technical evidence suggests that co-optimizing fuels and engines has the potential to cost-effectively enhance overall system efficiency, particularly matching fuel octane and octane sensitivity to high compression ratio engines, realizing these benefits requires significant coordinated changes in engine design, fuel production, and fuel distribution infrastructure. As such, while implementing these coordinated changes is feasible, it will take at least a decade and is therefore not realistic within the 2025 timeframe. While initial elements of the system may be deployed sooner, for example selling compatible cars, realizing the potential emissions benefits of a co-optimized system will not be achieved until the vehicles, fuels and fuel distribution infrastructure are in place.[13]
- Modeling: As noted earlier, the Final Determination did not utilize EPA's ALPHA and OMEGA models. The ALPHA model is an open source, accessible, and peer-reviewed full-vehicle simulation model, and according to the National Research Council, "the use of full vehicle simulation modeling…contributed substantially to the value of the Agencies' estimates of fuel consumption and costs, and [the committee] therefore recommends the continue to increase the use of these methods to improve their analysis."[14] The OMEGA model is built upon the ALPHA model, and its public accessibility adds additional transparency to the rulemaking process as well as itself provides additional value as the basis for policy research.[15] At the same time, EPA staff continues to improve

[9] EPA-420-R-15-012
[10] C. Grace Haaf, Jeremy J. Michalek, W. Ross Morrow and Yimin Liu, "Sensitivity of Vehicle Market Share Predictions to Discrete Choice Model Specification," *J. Mech. Des* 136(12), 121402 (Oct 20, 2014). Online at http://dx.doi.org/10.1115/1.4028282.
[11] EPA. 2012. *Consumer Vehicle Choice Model Documentation.* EPA-420-B-12-052, p. 3.
[12] Jim Tamm, "NHTSA's Recent Activities on Light-Duty Fuel Economy," presentation to the National Research Council, Washington, DC, June 23, 2014.
[13] Farrell, John, John Holladay, and Robert Wagner. "Fuel Blendstocks with the Potential to Optimize Future Gasoline Engine Performance: Identification of Five Chemical Families for Detailed Evaluation." Technical Report. U.S. Department of Energy, Washington, DC. 2018. DOE/GO-102018-4970.
[14] National Research Council Committee on the Assessment of Technologies for Improving Fuel Economy of Light Duty Vehicles, Phase 2. 2015. *Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles*. National Academies Press: Washington, DC. Online at https://www.nap.edu/catalog/21744/cost-effectiveness-and-deployment-of-fuel-economy-technologies-for-light-duty-vehicles.
[15] For example, Lutsey, N., et al. 2017. https://www.theicct.org/publications/US-2030-technology-cost-assessment

these resources.[16] It is paramount that the agency continue to utilize peer-reviewed, transparent, and publicly available models in order to justify its regulatory actions.

Glider Regulation

Of course, the Final Determination is not the only action where the Administrator has substituted industry comment for hard evidence. In its proposal to allow the sales of glider vehicles, EPA relied upon technical data that is questionable not just for its conclusions, but for its flawed methodological approach and compromised pedigree.

While EPA claims that the basis for its action on glider kits is legal in nature, it repeatedly refers to data submitted by the petitioning industry in support of its assessment, never once attempting to validate the information submitted by the petitioners nor referring at any point in the proposed repeal to the numerous other comments which conflict with the assertions made by the petitioners. This alone is concerning, for many of the same reasons raised above regarding the Administrator's Final Determination. However, it is even more troubling considering the provenance of the study itself.

The Tennessee Tech study liberally quoted by the Administrator in the agency's proposal was funded by Fitzgerald Trucks, one of the petitioners; it was conducted at Fitzgerald's facilities, using Fitzgerald's proprietary test procedures rather than any of the many widely established regulatory and industry-certified tests; and it was conducted by a research team at Tennessee Tech that included "no qualified, credentialed engineer."[17] The principal investigator for the project withdrew himself from the study,[18] citing numerous concerns including how results were misrepresented for political purposes and later noting that the study in question included examples of "falsification by omission," a "violation of research principles."[19] In fact, members of the faculty recommended that a graduate student involved in the study no longer complete a thesis on the work, citing concerns over handling of the data.

The repeated referral of the Administrator to the Tennessee Tech study is made even more perplexing by the test data provided by the agency to the docket affirming its conclusions on the impacts of these vehicles, yielding NOx emissions up to 40 times greater and particulate matter emissions up to 450 times greater than modern heavy-duty trucks.[20] These results are largely consistent with EPA's estimates of the emissions from these vehicles when the heavy-duty vehicle regulations were finalized[21] as well as separate and independent testing by the California Air Resources Board.[22] My own analysis of EPA's test data indicates that it is likely Fitzgerald has tampered with the emissions controls of these engines to an extent that they do not even meet the standards which the engines were originally designed to meet.[23]

A further shortcoming in the proposed glider repeal is the lack of an impact assessment. Given the technical data indicating the high levels of pollution posed by these vehicles, it is expected that repealing this

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[16] See, for example, the report on EPA's ALPHA model response surface equation, under peer-review.
[17] According to the head of Tennessee Tech University's engineering department, as quoted in Halper, E., "EPA used disavowed research to justify putting dirtier trucks on the road," *Los Angeles Times*, May 29, 2018.
[18] Letter from Dr. Benjamin Mohr to Philip Oldham re: withdrawal as principle investigator, January 25, 2018.
[19] Letter from Dr. Benjamin Mohr to Dr. Bharat Soni re: Violation of Tennessee Tech Policy 780 Misconduct in Research, January 27, 2018.
[20] Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles. EPA-HQ-OAR-2014-0827-2417.
[21] Appendix A, Section 14, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles -Phase 2: Response to Comments for Joint Rulemaking. EPA-420-R-16-901.
[22] California Air Resources Board Comments on Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits. EPA-HQ-OAR-2014-0827-4831.
[23] Union of Concerned Scientists Comments Regarding the Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits. EPA-HQ-OAR-2014-0827-4878.

provision of the heavy-duty regulations would result in significant adverse health impacts—in the proposed repeal, the agency even notes that "some benefits for children's health…would be lost." It is critical that EPA conduct a thorough analysis of the health and emissions impacts of this repeal, including impacts on low-income and vulnerable communities most likely to be adversely impacted by pollution along heavily-trafficked truck routes. It should also take into consideration that the current levels of glider deployment more closely represent a floor than a ceiling, since it is likely that manufacturers and/or assemblers who have either exited the glider market or not yet participated may choose to enter the glider market as a way to provide low-cost trucks to circumvent the addition of complex and expensive pollution controls required of conventional heavy-duty trucks, thus leading to an increase in marketshare for glider vehicles.

Conclusion

Recent regulatory activity by EPA has ignored significant technical data, relying significantly upon extensive repetition of industry comments without any external validation. The Science Advisory Board should review these actions and ensure that the EPA is upholding its mission to protect public health and the environment.

TESTIMONY OF GLEN KEDZIE ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS ON EPA'S REPEAL OF EMISSION REQUIREMENTS FOR GLIDER VEHICLES, GLIDER ENGINES, AND GLIDER KITS RULE
(May 31, 2018)

Good afternoon. My name is Glen Kedzie and I am Vice President, Energy & Environmental Counsel for the American Trucking Associations (ATA). Thank you for the opportunity to provide testimony on the scientific justification, or lack thereof, behind EPA's proposed repeal of emission requirements for glider vehicles.

ATA is the trade association representing the interests of 34,000 companies in the U.S. Through our prior written comments and testimony, ATA has strongly opposed EPA changing course and repealing the glider provisions due to their excessive emissions and their undercutting the decades and billions of dollars of investments by fleets, manufacturers, and suppliers of clean vehicle technologies.

ATA has a long history of working with EPA in reducing emissions. Our message has remained consistent – new regulations must be justified; be economically and technologically achievable; must be based upon sound data and science; implementation should not create major market shifts or disruptions in equipment purchasing cycles; and be developed with an eye towards transparency.

Diesel engines have made incredible progress since the mid 1980's in addressing NOx and PM. Today's near-zero engine emissions reflect the major progress our industry has advanced over the last 30+ years. The same cannot be said for glider vehicles.

Putting the trucking industry's emission reductions in perspective, over 36% of heavy-duty MY 2011 and newer diesel trucks in operation today are equipped with near-zero emission clean diesel technologies.[1] On the other hand, while glider vehicles comprise only 5% of heavy-duty tractors, their emissions will represent about one-third of all NOx and PM emissions from heavy-duty tractors in 2025 if EPA leaves them unchecked.

The science and data supporting the agency's justification in regulating NOx and PM emissions from gliders rests on solid ground both under highway cruise conditions and transient operations. EPA's November 20, 2017, glider emissions testing report, and CARB's December 27, 2017, emissions analysis referenced as Attachment 3 in its comments to the proposed glider repeal rule docket further justify and thoroughly substantiate the differentiation in emissions between gliders and new vehicles. Furthermore, Section 14.2 of the August 2016 EPA/NHTSA *Response to Comments* document provides a plethora of support for the agency's glider

[1] Industry research commissioned by the Diesel Technology Forum and conducted by IHS Markit.

provisions. It also must not be left without saying that fatally flawed and elementary studies on glider emissions funded by select special interests have no place in setting laws to protect human health and the environment.

Of note, Environment and Climate Change Canada published their final Phase 2 regulation yesterday which included provisions to regulate glider vehicles. While ATA has not had time to review supporting documents to this rule, it would be advisable for the agency to peruse this regulation for further analysis and data on glider vehicles if warranted.

Finally, while economic cost considerations -- including employment losses -- are among the factors considered by the agency in setting standards, glider repeal stakeholders using questionable employment loss figures should substantiate and justify such numbers and EPA must account for associated employment gains in other trucking industry sectors.

In closing, ATA supports the current scientific conclusions justifying the regulation of glider vehicles to protect human health and the environment and stands ready to assist the agency in providing any additional information or data as necessary on this critical matter.

Thank you.

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RE: Statement of Amit Narang, Regulatory Policy Advocate, Public Citizen
Submitted to: Scientific Advisory Board of the U.S. Environmental Protection Agency
May 31, 2018

Members of the Board, thank you for the opportunity to testify today. I am Amit Narang, regulatory policy advocate for Public Citizen, where I focus on federal agency compliance with the rulemaking process including testifying in Congress numerous times on issues related to oversight of the Executive Branch rulemaking process. I am here to discuss various procedural defects in the EPA's current rulemaking regarding the repeal of Phase 2 emission requirements for so-called "glider" trucks. I applaud the Board's interest in reviewing the scientific and technical basis for this rulemaking.

EPA's proposal to repeal the Phase 2 emission requirements for gliders is almost entirely devoid of any evidentiary foundation. Instead, EPA claims that scientific, economic, and other technical evidence, data, and analyses are not required for this rulemaking since it is simply a re-interpretation of the Clean Air Act's application to glider trucks. This ignores the legal requirement that EPA must demonstrate its rule is the product of reasoned decision-making and provide a rational basis for the rule that comports with the relevant statutory factors in the Clean Air Act regarding protection of public health and the environment. Given the EPA's stance, it is not surprising that the EPA has failed to provide any scientific basis to justify the rule, or to dispute the findings from the Phase 2 rulemaking that glider trucks could provide up to one third of all nitrous oxide and particulate matter emissions from heavy duty trucks by 2025 if left unregulated.[1] According to internal agency research not released until after EPA published this proposal, a new 2017 glider truck can emit up to 450 times the particulate matter (PM) pollution, and up to 43 times the nitrous oxide (NOx) pollution, of model year 2014 and 2015 trucks. The only scientific study that EPA cited in its proposal, provided by a glider truck manufacturer which successfully petitioned for the proposal, has since been withdrawn and disavowed by the academic institution that conducted the study.

[1] 81 Fed. Reg. at 73,943 (Oct. 25, 2016).

Turning to non-scientific evidence and analyses, EPA also failed to provide any regulatory impact analysis to accompany the proposal. Such regulatory impact analyses routinely accompany economically significant rules of this nature and provide the public with an understanding of projected impacts of the rule, including the costs and benefits or economic impact of the rule. In the absence of a regulatory impact analysis, EPA also likely failed to comply with section 317 of the Clean Air Act that requires the Administrator to analyze, and consider in some manner in the text of the rule, specific economic impacts in five categories for rulemakings undertaken under section 202 of the Clean Air Act. EPA did place an abridged version of the analysis separately in the rulemaking docket but that analysis makes clear that "EPA did not, however, consider this economic impact assessment itself in proposing the action."[2]

According to reports, EPA's failure to provide a regulatory impact analysis for its draft final rule has resulted in the Office of Information and Regulatory Affairs (OIRA) declining to review the draft final rule until such an analysis is provided. Yet, it is unclear why OIRA allowed EPA to publish the proposal without such an analysis while now insisting that one is required. A close examination of the changes OIRA made to EPA's draft proposed rule[3] reveals that the rule's designation was changed from "economically significant" to "significant" on the final day of the OIRA review period likely in order to allow EPA to propose the rule without a regulatory impact analysis. On EPA's spring 2018 regulatory agenda, the rule is now listed as "economically significant" where it was previously just listed as "significant" in the preceding regulatory agenda. It is critical that EPA and OIRA be transparent with the public as to why EPA was allowed to propose this rule without any regulatory impact analysis, and without the section 317 economic analysis, given its current designation as "economically significant."

Finally, EPA cannot simply cure these substantial procedural defects by including new data and analysis at the final rule stage. Instead, if EPA seeks to continue with this rulemaking, it must provide any new data and analysis by re-proposing the rule in order to give fair notice to the public and allow the public an opportunity to comment on the new information and to avoid additional legal vulnerability. If the Board elects to review the rule, EPA should postpone any re-proposal of the rule in order to incorporate the Board's finding. Once again, thank you for the opportunity to testify today.

[2] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2407
[3] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2403

Testimony of Michael Walsh, Independent Consultant

Before the U.S. Environmental Protection Agency Science Advisory Board

May 31, 2018

Good afternoon, I am Michael Walsh. I am an independent consultant, and I have spent my entire career working on vehicle pollution issues. I previously served as the Deputy Assistant Administrator for the Office of Mobile Sources Air Pollution Control, the predecessor of today's Office of Transportation and Air Quality and was the founding Chairman of the International Council on Clean Transportation.

I am pleased to be able to testify before the Board today. I want to thank all of you for your public service. Scientific integrity is the foundation of EPA's mission, and the Board must fulfill its role of ensuring that future EPA decisions are grounded in the most rigorous scientific and technical foundation possible.

I strongly encourage the Board to commit to taking four actions:

1) To undertake a formal review of the Reconsideration of the Final Determination for the light-duty GHG emissions standards
2) Further, to commit to undertaking a formal review of the upcoming Notice of Proposed Rulemaking on light-duty vehicle GHG emissions standards
3) To undertake a formal review of the proposed Repeal of pollution limits for heavy-duty glider trucks, and
4) To undertake a formal review of Strengthening Transparency in Regulatory Science

I would like to highlight a few key issues on these actions:

<u>Light-Duty GHG Emissions Standards</u>

There is a massive technical record of approximately 10,000 pages supporting the appropriateness of the light-duty GHG emissions standards that are currently in effect. This record spans from 2009, when the first phase of the standards was proposed, to January 2017, when the original Final Determination for the standards was signed by then-Administrator McCarthy. EPA performed the most comprehensive federal regulatory automotive technology evaluation over this 8-year period. Following recommendations by National Academy of Sciences reports, EPA staff developed the first agency vehicle simulation model, and became the first and only federal agency to sponsor vehicle technology cost tear-downs. They benchmarked over 30 of the world's most efficient vehicles, engines, and transmissions, and "reverse engineered" engine and transmission maps that are the core inputs to the vehicle simulation model for precise effectiveness and cost estimates.

I cite this comprehensive technical record to compare it to the meager basis for the recent Final Determination issued by Administrator Pruitt in April. That qualitative document offered no scientific or technical evidence from EPA for the agency's claim that the 2022-2025 standards were no longer appropriate, and instead offered comments from automakers, with no independent assessment of those claims.

EPA can and must do better than this, and I strongly encourage the Board to formally review both the Reconsideration of the Final Determination, as well as the upcoming Notice of Proposed Rulemaking.

Heavy-Duty Gliders

I agree completely with the SAB Work Group that the EPA Glider proposal "is highly controversial in that it would be an end-run around new truck emission standards" and "it is in the best interests of EPA to use credible technical information in a proposed rule." It is an indictment of the proposal that the one technical document that was cited in the proposal—the Tennessee Tech study—is now the subject of a research misconduct investigation by the university, while an EPA analysis that found very high glider emissions was ignored. I strongly encourage the SAB to formally review the Glider proposal.

Strengthening Transparency in Regulatory Science

Finally, this proposed rule would weaken, rather than strengthen, the scientific basis for EPA's regulatory decisions by barring EPA consideration of valid scientific research. It ignores the many mechanisms that the scientific community and EPA have long used to review, assess, and vet scientific studies, separate and apart from disclosure of data. For EPA to ignore or exclude studies merely because they do not meet the proposed disclosure requirement is not consistent with good scientific practice.

Conclusion

Initiating a formal review of these agency actions will help to ensure that the Agency relies on robust scientific and technical information on criteria and GHG emissions and air quality in taking further actions that have significant consequences for public health.

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May 22, 2018

Written Statement for the Public Meeting of the Executive Committee of the EPA Science Advisory Board, 5/31 to 6/1

On behalf of the Union of Concerned Scientists (UCS), I submit this comment to the Environmental Protection Agency (EPA) Science Advisory Board in anticipation of its meeting to discuss the agency's semiannual regulatory agenda and other matters. UCS is a science-based nonprofit working for a healthy environment and a safer world. Our organization combines independent scientific research and citizen action to support innovative, practical solutions and secure responsible changes in government policy, corporate practices, and consumer choices.

First, I would like to commend the SAB workgroup on its review of the Spring 2017 and Fall 2017 regulatory agendas and its suggestions to review proposed changes to the clean power plan, standards of performance for greenhouse gas emissions for new, reconstructed, and modified sources, greenhouse gas emissions standards for light-duty vehicles, and emission requirements for glider vehicles. These original regulations set historically strong standards to limit methane emissions that have disastrous impacts on the climate and to reduce carbon emissions from power plants and automobiles. EPA's move to cancel the information request from the oil and gas industry for performance standards for oil and gas emissions has meant that there is even less information on which to base a deregulatory decision, and the SAB must have a chance to review these EPA actions that could have dramatic environmental and public health implications.

On the emission requirements for glider vehicles, it is critical that the EPA not move forward with its repeal for the reasons outlined by the SAB. As noted in the workgroup's memo, the scientific basis of the repeal was an emissions study from Tennessee Tech University funded by Fitzgerald Company, one of the primary manufacturers of glider trucks, and has since been withdrawn by the university because of the unscientific nature of the article.[1] The rule this new proposed rule would seek to repeal was a huge public health victory and EPA's own analysis expected that the particulate matter emissions released over the lifetime of glider trucks sold in just one year will result in as many as 1,600 premature deaths.[2] We encourage SAB's review of the scientific justification of this proposed repeal.

In addition to the three actions flagged by the workgroup for further review, the workgroup noted that there was a general lack of supporting evidence for the SAB to even judge the merits of scientific review for the other items on the list provided to the committee, specifically on the

[1] Lipton, E. 2018. University Pulls Back on Pollution Study That Supported Its Benefactor. *New York Times*, February 21. Online at https://www.nytimes.com/2018/02/21/admin/trucking-pollution-study.html, Accessed May 18, 2018.
[2]U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration. 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium-and Heavy-Duty Engines and Vehicles-Phase 2, Response to Comments for Joint Rulemaking, August. Online at https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF, Accessed May 18, 2018.

Waters of the United States Rule and on TSCA regulation. There is certainly an opportunity for the SAB to advise the administrator to provide specific information on the peer review associated with the science basis for actions and more description of the bases for its actions.

We would also like to support the SAB workgroup's recommendation that the SAB review the agency's April proposed rulemaking, "Strengthening Transparency in Regulatory Science." In the SAB workgroup's memo, it recommends that the SAB review the merits of the rule because "it deals with a myriad of scientific issues for which the Agency should seek expert advice from the Science Advisory Board." Some of the areas flagged by the memo include the lack of assessment of the impact of data restrictions on current or future rulemaking, the fact that the EPA did not solicit input from the scientific community, and that the rule does not acknowledge the strides in transparency that have already been made by epidemiologic science community. For the reasons that the SAB laid out in its May 12th memo, and more that we will be articulating in an upcoming comment, this proposed rule would effectively change the way the EPA uses science in its rulemaking and thus how EPA SAB can review agency actions. It is crucial that the SAB communicate to the EPA the necessity of its review before any further actions are taken by the administration.

We would also urge the SAB to consider reviewing a recent EPA guidance[3] that would dramatically alter how science informs the National Ambient Air Quality Standards (NAAQS) process which has effectively and drastically reduced ambient air pollution in this country for decades. According to statute, the SAB can provide advice on the "adequacy of the scientific and technical basis" of proposed criteria documents, standards, limitations, or regulations[4] which should include this particular guidance which along with a presidential memo issued last month[5] would chip away at the long-standing science-based process that has effectively and substantially reduced ambient pollution in this country for decades. Under the proposal, the EPA and its science advisors must not solely consider public health (as the law requires) but must elevate consideration of potential adverse impacts from setting a health-based standard, such as economic impacts. While the EPA guidance claims to "differentiate science and policy judgments," it in fact does the opposite. The process would be removed from EPA's Office of Research and Development and the comprehensive document outlining the state of the science on pollutants and health that the administration relies on to make science-based decisions may be combined with a regulatory impact assessment, blurring the distinction between scientific and political judgments. This builds on a presidential memo that limited the kinds of scientific analyses the EPA can use when determining whether states are meeting the standard. As former CASAC chair Barry Goldstein wrote in a recent op-ed, "this new approach to setting primary air quality standards should be judged in conjunction with other major decisions about the

[3] Pruitt, E.S. 2018. Memorandum: Back-to-Basics Process for Reviewing National Ambient Air Quality Standards, May 9. Online at https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf, Accessed May 18, 2018.

[4] 42 USC § 4635(c)

[5] Trump, D.J. 2018. Presidential Memorandum for the Administrator of the Environmental Protection Agency, April 12. Online at https://www.whitehouse.gov/presidential-actions/presidential-memorandum-administrator-environmental-protection-agency/, Accessed May 18, 2018.

incorporation of science into EPA."[6] We urge the SAB to heed his call and to inform the EPA that this is another regulatory action that the SAB should have a chance to weigh in before the agency moves forward with implementation.

Additionally, on June 1st, the SAB will hear from EPA staff on its approaches on perfluoroalkyl substances (PFAS). As UCS FOIA documents revealed earlier this month that the White House has possibly slowed the release of U.S. Department of Health and Human Services (HHS) Agency for Toxic Substances and Disease Registry (ATSDR's) toxicological profile of PFAS,[7] we would encourage the SAB to ensure that the science staff at EPA is coordinating with HHS and not obstructing the release of a report that will help communities impacted firsthand by PFAS and PFOA contamination of their water to understand what levels are safe and hold military bases and industrial facilities accountable for swiftly remediating sites that are public health hazards.

Finally, I want to communicate how important it is that the SAB continue to meet regularly. Public access to information is at the heart of the Federal Advisory Committee Act by which the SAB is governed. We are glad to see that the SAB is meeting in person after a hiatus and welcome new members of the SAB. We want to remind the Board of the important role it serves in making sure the Administrator has access to strong, objective scientific advice as he endeavors to take on a variety of science-based tasks. The SAB has a long history of serving a critical role to the agency and the public relies on this body to hold the agency accountable. Thus, it is also important that the SAB does everything it can to remain objective including continuing to hold members to conflicts of interest reviews and recusals when deemed necessary to ensure that science, not politics, informs the advice given to the administrator and the best available science is able to inform the public health protections for which EPA is responsible.

Sincerely,

Genna Reed
Lead Science and Policy Analyst
Center for Science and Democracy, Union of Concerned Scientists

[6] Goldstein, B.D. 2018. Pruitt's EPA disregards the science behind the Clean Air Act. *The Hill*, May 16. Online at http://thehill.com/opinion/energy-environment/387381-pruitts-epa-disregards-the-science-behind-the-clean-air-act, Accessed May 18, 2018.
[7] Snider, A. 2018. White House, EPA headed off chemical pollution study. *Politico*, May 14. Online at https://www.politico.com/story/2018/05/14/emails-white-house-interfered-with-science-study-536950, Accessed May 18, 2018.

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Testimony of Rachel Muncrief and John German on behalf of the International Council on Clean Transportation

Before the U.S. Environmental Protection Agency Science Advisory Board

May 31, 2018

Washington Plaza Hotel, 10 Thomas Cir NW, Washington, DC

A. Oral Testimony

My name is Rachel Muncrief, and I direct the heavy-duty vehicles program and compliance and enforcement program of the International Council on Clean Transportation. I have a PhD in Chemical Engineering and have been working on vehicle emissions and efficiency policy in the United States for 15 years — 5 years at the ICCT and 10 years at the University of Houston, concluding my time in Houston as a research faculty and director of the university's diesel vehicle testing and research lab. John German is a Senior Fellow at ICCT, with primary focus on vehicle policy and powertrain technology. He started working on these issues in 1976 in response to the original CAFE standards, addressing these issues for about a decade each for Chrysler, EPA, Honda, and ICCT.

Thank you for the opportunity to testify today. I would like to briefly address a few key technical issues raised in the SAB workgroup memo from May 18, 2018 concerning the 2025 light-duty vehicles GHG standards and the emission requirements for glider vehicles. We would like to state up front that we fully support the workgroup's recommendations to move forward with an SAB review of these proposed actions.

On the 2025 GHG standards: The agencies' 2016 Technical Assessment updated their analyses, but still failed to consider a number of technology advances that are already in production or

close to production, overestimated the cost of other technologies, and ignored benefits from features associated with efficiency technology that are desired by consumers.

Existing technologies are being improved and new technology is being developed at astounding rates. ICCT cooperated with suppliers on a series of six technology papers in 2016, examining all aspects of technology development. OMEGA modeling conducted by ICCT in 2017 using updated inputs based on the ICCT/supplier reports found that the cost to comply with the 2025 standards would be only $866 per vehicle, less than half the projected cost of about $1,800 in the original rule and a third less than the updated cost of about $1,300 in the TAR. And even our analysis cannot keep up with the rapid pace of technology introduction – just two examples are Mazda's introduction of the world's first gasoline compression ignition engine in 2019 and FCA's inclusion of a low-cost 48v hybrid system as standard equipment on the 2019 RAM pickup truck with the base V6 engine. Projections that large numbers of full hybrids are required to meet the standards are based upon analyses that artificially and improperly restrict the uptake of conventional technologies.

There is so much conventional technology coming that there are multiple pathways to comply and there is no tradeoff with performance, as manufacturers can simply install additional technology to meet any increase in consumer demand. Plug-in vehicles and full hybrids will not be required to meet the standards, although of course they can be used at the manufacturer's option.

The TAR failed to even consider other consumer benefits associated with efficiency technology. For example, turbocharged engines and hybrids improve throttle response, transmissions with more gears have smoother shifts and reduce engine noise, and lightweighting improves handling, braking, and performance. NHTSA has also failed to consider the better crash properties of high-strength steel and aluminum in their safety analyses.

Using realistic technology costs, the fuel savings alone offset the increased technology cost. Considering the other consumer benefits from technology, there are no significant barriers to consumer acceptance of redesigned or advanced technology vehicles. In fact, consumers are likely to increase their purchases of new vehicles.

On the emissions impact of glider trucks: According to the EPA's own testing results, in operations typical of tractor-trailer driving, glider trucks emit 30 times the NOx and 60 times the PM of a modern tractor-trailer equipped with emissions controls. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up over an order of magnitude from 10 years ago. The ICCT conducted our own scenario analysis, which assumed the annual sales volume would steadily grow to 17,400 units by 2027. In that scenario, EPA's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade. In monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade.

This proposed regulation would likely also increase fleet-wide CO_2 emissions over the next decade. Although the EPA's testing indicated that the glider vehicle powertrains produced approximately 4-5% lower CO_2 emissions (for typical operation) than the model year 2014/2015 trucks they tested, typical tractor truck fuel consumption will be reduced by around 40% from 2010 to 2027 due to the EPA's Phase 1 and Phase 2 GHG regulations. If glider trucks are not regulated under these regulations, then it is unlikely they will benefit from these mandated improvements in fuel efficiency.

We have submitted more extensive comments in written form. Thank you for your time.

B. Written Testimony

ICCT response to questions posed in the SAB Workgroup memo of May 18, 2018

1. Questions regarding Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77)

As requested by the Science Advisory Board, the review below is based upon documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. Specifically, we have addressed the first four questions suggested by the SAB for review.

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?

EPA and NHTSA properly accounted for some factors influencing consumer acceptance of technologies needed to comply with the standards in the 2016 TAR, but overestimated technology cost and failed to quantify benefits from features associated with efficiency technology that are desired by consumers. Properly considering all of the factors, there are no significant barriers. In fact, consumers benefit from the standards and they are more likely to increase their purchases of new vehicles. The new and improve technologies required to meet the standards impact customers in four ways:

1. **Increased vehicle price**. The technology cost estimates in the TAR do not account for the latest technology developments and, thus, are overstated. Certainly, the cost to meet the standards is significant. However, it is important to understand that existing technologies are being improved and new technology is being developed at astounding rates, which is rapidly reducing the projected cost to comply with the standards. EPA analyses for the 2012 rule establishing 2017-2025 standards found that the cost of meeting the 2025 standards versus the 2015 baseline vehicles would be about $1,800 per vehicle. EPA updated their analyses for the 2016 Proposed Determination and found that the cost had dropped to about $1,300 per vehicle. However, even the 2016 analyses understated technology development and, thus, overstated the costs to comply. ICCT cooperated with suppliers on a series of six technology papers in 2016, examining all aspects of technology development (see attachment for links). These reports found that the TAR failed to consider a number of technology advances that are already in production or close to production—such as E-boost, dynamic cylinder

deactivation, variable compression ratio, and numerous thermal management strategies—and continued to overestimate the cost of other technologies. OMEGA modeling conducted by ICCT in 2017 using updated inputs based on the ICCT/supplier reports, found that the cost to comply with the 2025 standards would be only $866 per vehicle. Further, despite the best efforts of the agencies, suppliers, and the ICCT, recent announcements from Toyota, Mazda, GM, FCA, and Volvo have already made the updated technology assessments of the past year obsolete, as the industry continues to play technology leapfrog at an astounding rate. The redesigned 2018 Toyota Camry with the base engine has incorporated many technology improvements and improved fuel economy by 26% over the previous generation, already meeting its 2022 footprint target without any hybridization, lightweighting, or off-cycle credits. Mazda is introducing the world's first gasoline compression ignition in 2019 with up to a 30% improvement in efficiency, which was not considered in the 2016 TAR – and has announced it is developing plans for a future engine with an astounding 56% thermal efficiency. GM is introducing the world's first dynamic cylinder deactivation system on their 2019 full-size pickup trucks with twice the benefit of conventional cylinder deactivation, which also was not considered in the 2016 TAR. Finally, FCA is making a 48v hybrid system standard equipment with the base V6 engine on the 2019 RAM pickup truck and Volvo will make 48v systems standard on every model they redesign starting in 2019. **It is clear that the cost to comply with the 2025 standards will be less than half the cost estimated when the standards were adopted in 2012. Further, there is so much technology coming that manufacturers can pick from several different compliance pathways.** Toyota and Mazda are clearly on a path to comply primarily with naturally aspirated engines; some combination of high-compression ratio Atkinson cycle engines and gasoline compression ignition. Ford and Honda are clearly choosing to use downsized, turbocharged engines to comply. FCA is an early leader on 48v hybrid systems. Lightweighting is also being used for vehicles from a variety of manufacturers. Meeting the standards will not be difficult and will not be constrained to a single set of technologies.

2. **Fuel savings.** Consumer fuel savings are accurately modeled by EPA, NHTSA, and CARB. Even with the lower fuel prices since 2012, the fuel savings are still 2.4 times larger than the 2016 TAR technology cost and 3.6 times larger than the 2017 ICCT cost. However, an important issue with respect to consumer acceptance of technology is how much of the fuel savings are valued by new vehicle purchasers. New vehicle purchasers are not the same and some value the fuel savings higher than others. Even the vehicle manufacturers acknowledge that most customers value 2-3 years of fuel savings and other analyses find that consumers value about 5 years of fuel savings on average. Using the 2016 TAR costs, the fuel savings would pay back the technology costs in about 4.5

years and the pay back would be about 3 years with the 2017 ICCT costs. **Thus, for most customers the fuels savings alone would offset the increase in vehicle price.** Also note that these payback periods are significantly shorter than the average new vehicle loan of 5.5-6.0 years, meaning that the fuel savings would more than pay for the increased monthly loan payments.

3. **Foregone consumer attributes**
    a. **Performance.** The TAR appropriately determined that consumer value of performance is independent of the standards and set the standards assuming constant performance. While many technologies can be used to boost both performance and efficiency, it is inappropriate to directly trade off consumer preferences for performance and fuel economy against each other. If consumers wish to purchase more performance, manufacturers can satisfy this demand and still meet the standards by installing additional technology – there is plenty of technology available to do both. Further, recent computer simulation modeling suggests that when newer technologies are used to boost performance, the reduction in fuel economy is smaller than with older technologies. Finally, consumer demand for performance improvement is subject to diminishing marginal returns, i.e. many mainstream vehicles are already faster than most customers will ever use and consumer demand is leveling off.
    b. **Safety.** The large majority of the fuel economy and GHG reductions are achieved with powertrain technology. Prominent examples include downsizing engines for better efficiency while maintaining performance with turbocharging, improved transmissions and additional gear ratios, higher compression ratio for higher efficiency, Atkinson cycle engines that extract more useable work from combustion, and hybrids (mainly for Japan in terms of market share). But these are just the main ones – there are a host of other technologies that also improve efficiency. In addition, there are improvements in aerodynamic design to reduce drag, reductions in tire rolling resistance, and higher efficiency accessories and pumps. None of these affect safety in any way. Only lightweighing, which is an important but still relatively minor part of the overall efficiency improvements, affects safety. High-strength steel and aluminum, are increasingly employed in new vehicle designs not just because they are lighter and help comply with fuel economy and GHG standards, but because they have better crash properties than conventional steel and help improve NCAP scores. **These better crash properties are not reflected in NHTSA's traditional vehicle safety analyses**, which are based upon historical data.
4. **Other consumer attributes. The TAR failed to quantify benefits from features associated with efficiency technology that are desired by consumers.** These consumer

welfare gains are very significant and the agencies arbitrarily failed to consider them. Examples include:

a. Lightweighting improves maneuverability, performance, and braking and increases cargo and towing capacity. Note that improved maneuverability and braking also decrease the chances of an accident.
b. High-strength steel and aluminum have better crash properties than conventional steel and their use improves vehicle safety.
c. Both increasing the number of transmission gears or using a Continuously Variable Transmission reduce noise on the highway (by allowing the engine to run at lower speeds), provide smoother shifting, and improve performance (by keeping the engine closer to its peak power speed).
d. Both turbocharging or hybrid electric motors provide faster throttle response and increased torque at low engine speeds for better drivability.
e. Window glazing keeps the vehicle cooler when sitting in the sun.

Summary: All four of these factors affect consumer purchase decisions and all must be analyzed and incorporated in order to properly assess barriers to consumer acceptance of redesigned or advanced technology vehicles. The fuel savings alone offset the incremental technology cost for most customers. Many of the efficiency technologies offer other attributes valued by consumers – and manufacturers will incorporate these benefits into their future product plans. **When all of the benefits are considered, the standards provide incentives, not barriers, for consumers to purchase new technology vehicles.** A prime example of this is the Ford F150 pickup truck, for which V6 engines outsell V8 engines three to one (72% versus 24%),[1] primarily because the 3.5L turbocharged V6 engine has more torque and towing capacity than the 5.0L V8. Also note that there are multiple pathways to compliance

Misinterpretation of EPA Manufacturer Performance Report Trends[2]: On average, manufacturers exceeded the standards every year from 2010 through 2015. But the margin over the standard decreased from 2014 to 2015, and for 2016 the average fell below the average standard level for the first time, by 9 gCO2/mile. Note that most of the compliance shortfall in 2016 is due to expiration of flexible-fuel vehicle credits after 2015, but the compliance margin still fell from 13 gCO2/mile in 2014 to 6 in 2015 to approximately 0 in 2016. complying with the standards every single year would be a high-cost compliance strategy, and the regulations are designed specifically around that fact. Every year a manufacturer exceeds

[1] Michael Wayland, "Downsized engines a test for GM pickups", Automotive News, May 21, 2018. http://www.autonews.com/article/20180521/RETAIL01/180529961/gm-pickup-cylinder-silverado-sierra
[2] EPA Greenhouse Gas (GHG) Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report for 2016 Model Year. https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles

the standards, it generates credits that can be used in the future. In total, manufacturers had accumulated credits of about 285 million Mg (Mg = million grams) of CO2 at the conclusion of the 2015 model year. A 2017 report from Resources for the Future estimated that GHG credits are worth $42 to $63 per Mg, so the total value of the credits accumulated through 2015 is roughly $12 billion to $18 billion dollars. Certainly, automakers want to maintain a cushion to handle unexpected events-that's part of the rationale for the credit system. But they can save billions of dollars by slowing down the rate of technology introduction and market penetration in order to under-comply at certain points and use up most of these valuable credits. **Manufacturer use of stockpiled credits to save money in no way affects the technology available in the future to comply with the 2022-2025 standards**, as discussed above.

- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?

The agencies evaluation of the rebound effect in the 2016 TAR is appropriate and based upon the best available data. The rebound effect is not fixed. Vehicle owners adjust how much they drive based upon how much they value their time and the marginal cost of driving. The value of time goes up as disposable income increases, such that economic growth causes owners to value the benefits of driving more highly and making the cost of driving relatively less important, thus decreasing the rebound effect. Improving vehicle fuel economy decreases the marginal cost of driving, making any further reductions in fuel consumption relatively less important and decreasing the rebound effect. Economic growth is projected to continue into the future and baseline vehicle fuel economy is improving due to standards already adopted for 2011 to 2021. Thus, **the rebound effect will continue to decrease in the future and is likely to be well under 10% by 2025**. Also note that owners would not drive more if they did not perceive economic benefits to the additional driving, which should also be incorporated into analyses of the rebound effect.

- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?

The answer here is similar to the answer to the question on the barriers to consumer acceptance of redesigned or advanced technology vehicles. **Due to the value placed by consumers on fuel savings and other consumer features, requirements for more fuel efficient new vehicles lead to increased new vehicles sales and shorter retention of older vehicles.** This, in turn, would lead to more emission reductions and improved safety.

- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?

The amount of conventional technology that has already been developed and is being introduced into production is much higher than projected by the agencies in the 2016 TAR. This means that **no sales of plug-in vehicles or full hybrids are needed to achieve the 2025 fleet average emission reductions**. Certainly, a manufacturer may decide that plug-in vehicles or full hybrids are a more cost-effective solution and use them to reduce the amount of conventional technology needed to comply, but this is a choice, not a requirement. Certain manufacturers that sell upscale vehicles with higher performance and more features that add weight, such as BMW and Mercedes, may need a reasonable number of 48v hybrid systems to compensate for the added weight and performance, but 48v hybrid systems are only about a third the cost of full hybrids. Note that manufacturer claims that large numbers of full hybrids are required to meet the standards are based upon analyses of historical technology that artificially restrict the available technologies, such that hybrids are the only path to compliance. This is simply a function of the artificial restriction of conventional technology.

ICCT/supplier working papers

- http://www.theicct.org/lightweighting-technology-development-and-trends-us-passenger-vehicles
- http://www.theicct.org/downsized-boosted-gasoline-engines
- http://www.theicct.org/automotive-thermal-management-technology
- http://www.theicct.org/PV-technology-transmissions-201608
- http://www.theicct.org/naturally-aspirated-gas-engines-201606
- http://www.theicct.org/diesel-engines
- http://www.theicct.org/hybrid-vehicles-trends-technology-development-and-cost-reduction

ICCT technology briefs

- http://www.theicct.org/lightweighting-technology-developments-briefing
- http://www.theicct.org/downsized-boosted-gasoline-engines-briefing
- http://www.theicct.org/tech-brief-thermal-management-technology-nov2016
- http://www.theicct.org/transmissions-techbrief-oct2016
- http://www.theicct.org/naturally-aspirated-engines-techbrief-jun2016
- http://www.theicct.org/diesel-tech-developments-tech-brief

Other ICCT technology assessments and modeling

- http://www.theicct.org/sites/default/files/publications/PV-LCV-Powertrain-Tech-Analysis_FEV-ICCT_2015.pdf
- http://www.theicct.org/next-generation-electric-vehicle-technologies
- http://www.theicct.org/US-2030-technology-cost-assessment
- https://www.theicct.org/blog/staff/technology-leapfrogging
- https://www.theicct.org/publications/how-things-work-omega-modeling-case-study-based-2018-toyota-camry
- https://www.theicct.org/blog/staff/us-fuel-economy-trend-reflects-business-strategy-not-tech-challenge
- https://www.theicct.org/sites/default/files/publications/US-LDV-Efficiency-Consumer-Benefits_ICCT_Briefing_21062017_vF.pdf

2. Questions regarding Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060- AT79)

- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?

Note that the way this question is worded seems to assume that glider trucks are not new trucks. It should be made very clear that the entire chassis of a glider truck is new and from the outside a glider kit would be indistinguishable from a new truck. That being said, Figure 1 below shows how the EPA certified emissions limits have changed in the US since the mid-90s, NOx and PM emissions have both been reduced by over 90%. The engine inside a typical glider truck is what is known as "pre-emissions", this means that there is no emissions control system in place to reduce NOx and PM emissions. Conversely, emissions from 2010 and newer heavy-duty diesel engines have sophisticated emissions control, including technology known as exhaust gas recirculation (EGR), selective catalytic reduction (SCR), and diesel particulate filters (DPF). Information about these technologies, how they work, and the estimated costs of such technologies can be found in the ICCT report titled "COSTS OF EMISSION REDUCTION TECHNOLOGIES FOR HEAVY-DUTY DIESEL VEHICLES[3]".

[3] https://www.theicct.org/publications/costs-emission-reduction-technologies-heavy-duty-diesel-vehicles

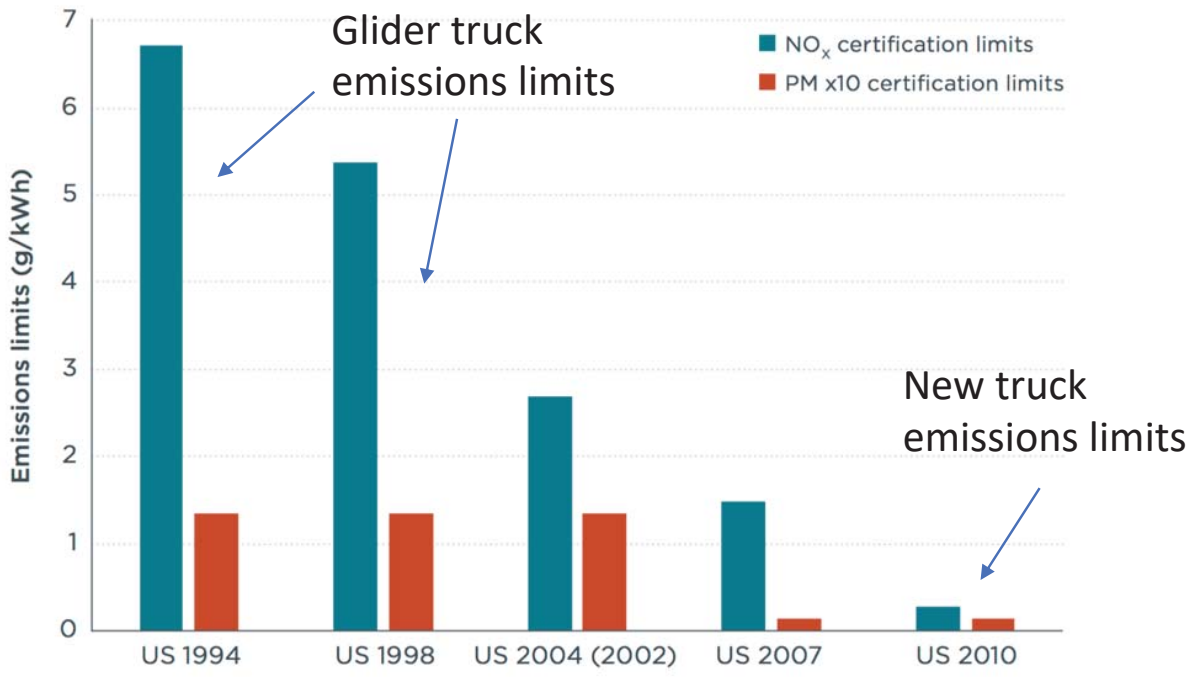

Figure 1. EPA emissions NOx and PM standards for heavy duty diesel engines

It is technically impossible for a vehicle with no emissions control system to have NOx and PM emissions comparable to that of a truck with a functional emissions control system. That being said, it should be noted that SCR systems require a minimal exhaust temperature to function optimally. In low load and low speed driving conditions (such as urban driving) it is possible to see an increase in NOx emissions from heavy duty vehicles equipped with an SCR system.

It is commonly discussed that glider trucks cost approximately 25% less to purchase than a new, emissions compliant, truck. It is also likely that the maintenance costs of a glider truck are lower due to the fact that there is less sophisticated technology to maintain. It is challenging to determine which model year used truck would be seen as "cost equivalent" comparison to a new glider truck. That being said, fleets that purchase new trucks typically keep their trucks for anywhere between 4-8 years, on average. Therefore, the second hand truck market is likely to be made up of trucks that fall under the latest (2010) emissions standard, making the average used truck significantly cleaner than a glider truck.

- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level

emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?

It is extremely difficult to predict what the market penetration of glider trucks will be in the future. However, we do know that glider trucks currently account for around 5% (10,000 units annually) of the Class 7 and 8 tractor truck market and we also know that sales of glider trucks are up over an order of magnitude from 10 years ago. Sales of glider trucks began a rapid rise in response to the new EPA emissions standards that began phasing in in 2007. Without a regulation in place to curb the sale of glider trucks, there is no reason to believe that sales of these trucks would decrease in future years. In fact, we believe it is likely that sales of these glider trucks would continue to rise in the absence of a regulation. For our national level analysis (which is detailed further in the appendix of this document) we chose to select a conservative assumption that the annual sales volume would steadily grow to 17,400 units by 2027. In that scenario, EPA's proposed regulation to repeal the glider kit ban would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade, that they would not be exposed to otherwise. To put this in monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade. We have not conducted an analysis of the impacts at the regional and local scale.

- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

As previously mentioned we predict the health damages that would be caused by this proposal over the next decade to be more than 12 billion dollars. NOx and PM from diesel exhaust are extremely toxic. The American Cancer Society lists diesel exhaust as a Group 1 known carcinogen to humans, alongside things like asbestos and radiation. In addition to lung cancer, long-term exposure to diesel exhaust has been linked to stroke, heart disease, pulmonary disease, chronic respiratory illnesses, asthma, bronchitis, and infections. The US citizens most likely to be impacted by the hazardous effects of diesel exhaust are children, the elderly, the sick, and the poor.

Although we have not done extensive analysis on the fleet-wide CO_2 emissions impact of the proposed glider regulation, we do point out that this proposed regulation would likely increase fleet-wide CO_2 emissions over the next decade as compared to a scenario in which the proposal

is not finalized. This is due to the fact that although the EPA's testing[4] indicated that the glider vehicle powertrains produced approximately 4-5% lower CO_2 emissions (for typical operation) than the model year 2014/2015 trucks they tested, typical tractor truck fuel consumption will be reduced by around 40% from 2010 to 2027 due to the EPA's Phase 1 and Phase 2 GHG regulations. If glider trucks go unregulated then it is unlikely they will benefit from these mandated improvements in fuel efficiency.

[4] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417

Appendix: ICCT Written Comments on Proposed Rule: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

January 4, 2018

RE: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits; Proposed Rule

The International Council on Clean Transportation (ICCT) would like to take the opportunity to provide comments on the U.S. Environmental Protection Agency's proposal entitled, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits.* The ICCT is an independent nonprofit organization founded to provide unbiased research and technical analysis to governments in major vehicle markets around the world. Our mission is to improve the environmental performance and energy efficiency of road, marine, and air transportation, as well as their fuels, in order to benefit public health and mitigate climate change.

The subsequent comments elaborate on the ICCT's oral and written testimony at the agency's public hearing on December 4, 2017.

We would be glad to clarify or elaborate on any points made in the attached comments. If there are any questions, EPA staff can feel free to contact our Heavy-Duty Vehicle Program Director, Dr. Rachel Muncrief (*rachel@theicct.org*).

Best regards,

Drew Kodjak
Executive Director
International Council on Clean Transportation

ICCT Comments on Proposed Rule: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

Background

Glider trucks consist of a new vehicle chassis into which an older re-manufactured engine has been installed. A decade ago, sales of glider trucks in the US were mostly limited to vehicles that had been in an accident that left the body unrepairable, but the powertrain still intact. Over the past 10 years, sales of glider kits have increased exponentially as a deliberate attempt by glider kit manufacturers and assemblers to circumvent emissions control regulations. In the Phase 2 Heavy Duty Vehicle Greenhouse Gas regulation, the EPA sought to cap and eventually disallow the sale of glider trucks equipped with engines that are not compliant with current emissions standards. This proposal would remove that provision from the Phase 2 regulation.

Based on ICCT's analysis of this regulation, the EPA reached the correct conclusion in the Heavy-Duty Vehicle Phase 2 Greenhouse Gas regulation. It is our position that the limitations on glider trucks sales set in that regulation should be kept in place unaltered. ICCT is strongly opposed to the EPA's proposal to repeal the emission requirements for glider vehicles for the following reasons:

- This regulation would cause US citizens to be exposed to an additional 1.5 million tons of NOx over the next decade.
- This proposal would cause US citizens to be exposed to an additional 16 thousand tons of PM 2.5 emissions over the next decade.
- This proposal would cost US citizens more than 12 billion dollars in health damages over the next decade.
- This proposal would set a precedent for the creation of a massive loophole that could potentially undo all current and future vehicle emissions control regulations, by declaring that EPA does not have the authority to regulate any vehicle with a single used component.

ICCT has previously submitted public comments[5] to EPA regarding our concerns over the loophole that has allowed the unchecked and rapid growth of glider kits over the past decade. Those comments are included here for reference as they are still relevant:

The ICCT recommends that the agencies ensure there are no regulatory loopholes whereby increasing unforeseen numbers of trucks exploit regulatory exemptions to

[5] October 1, 2015: Comment submitted by Drew Kodjak, Executive Director, International Council on Clean Transportation (ICCT) Comment on the Environmental Protection Agency (EPA) Proposed Rule: Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles; Phase 2. https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-1180

avoid deploying emission reduction and efficiency technology. The ICCT spends a considerable amount of time investigating gaps between policy objectives and their market outcomes. The U.S. exemption for gliders (i.e., "glider kits", "gliders", or "glider vehicles") in the criteria pollutant heavy-duty vehicle regulations is among the more egregious and high-risk regulatory gaps. The glider kit provision that was previously used to assist in bringing hundreds of repaired vehicles per year is now creating an entirely new market with tens of thousands of sales per year, now with multiple suppliers competing in the space. This glider market is predicated upon reduced costs from vehicles that are not regulated and not certified through the full process that most modern tractors are. This is a clear distortion of the market and the exploitation of a regulatory provision that was not foreseen to be used in such a way. We recommend that the agencies' include glider kit-manufactured vehicles within the greenhouse gas emission and efficiency regulations, as well as criteria pollutant emission regulations as soon as possible. Exemptions, if granted, would ideally be restricted to a number that is consistent with pre-emission-regulation glider production – on the order of hundreds of units per year industry wide – and only those with legally or insurance-verified evidence of inoperably damaged tractor frames.

Emissions Impact

EPA has sought comment on the following: *EPA also solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the older trucks they would replace.*

The phrasing of EPA's solicitation for comments is odd. As older vehicles reach the end of their useful life and are retired, they are replaced by new vehicles which meet strict emissions and safety standards. Glider trucks are sold and marketed as an alternative to purchasing a new vehicle with a modern, emissions compliant, engine. It is illogical to compare glider trucks with the vehicles that they are replacing. The correct comparison would be to compare new glider trucks with new trucks that meet modern emissions and safety standards.

EPA did not conduct any impact assessment or cost benefit analysis for this proposal. From ICCT's perspective this is highly unusual, and a major defect in the proposal. We are not aware of any previous EPA regulation that failed to consider air quality and health impacts as well as costs and benefits.

The ICCT did conduct our own analysis. Our findings are detailed below.

Emissions from glider trucks, which are sold and marketed as new trucks, are much higher than emissions from all other new trucks because the engines in glider trucks are not equipped with the modern emissions controls that new engines utilize. As noted in EPA's letter dated

December 1, 2017 to Tom Brewer of Tennessee Tech University[6], "*OEMs have nearly universally utilized significant degrees of advanced technology to achieve the 2010 and later standards, including but not limited to electronic fuel injection systems at a level of manufacturing quality and design limits which did not exist in the 1998-2002 time frame, turbocharger technology at a level of manufacturing quality and design limits which were not utilized in the 1998-2002 time frame, cooled exhaust gas recirculation technology, diesel particulate filter technology, and SCR-based NOx catalysts*."

According to chassis dynamometer testing conducted by US EPA's National Vehicle & Fuel Emissions Laboratory[7], in operations typical of tractor-trailer driving, that is a 95% weighting of highway activity (55 and 65 mph cycles) and 5% weighting of transient activity (ARB transient) for a test vehicle with a combined weight of 60,000 pounds (including the tractor, trailer, and payload), glider trucks emit 30 times the NOx and 60 times the PM of a modern tractor-trailer. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up over an order of magnitude from 10 years ago. If these numbers continue to grow, even at a moderate pace, (to 17,400 units per year in 2027) EPA's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade, that they would not be exposed to otherwise. To put this in monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade.

ICCT's analysis was done using EPA's own emissions testing data, EPA's MOVES model estimates of annual vehicle sales and vehicle miles traveled, and EPA's published estimates of damages per ton of direct emissions from on-road mobile sources. Therefore, we are confident that if EPA had done an impact assessment of this proposal the results would be close to ours. More details of our analysis can be found in a recent ICCT blog that can be found on our website[8] and is also attached as an appendix to this document for further reference.

Note that the extra NOx emissions caused by this proposal, if it is finalized, will be 13 times what the impact of the Volkswagen defeat device scandal would have been if EPA hadn't caught VW cheating (something in which my organization played a small but important part). VW's deception has cost that company over 20 billion dollars in fines in the U.S. It would be inconsistent and destructive for the EPA, having helped to penalize one company for evading a reasonable emissions regulation, to then turn around and rescind another regulation specifically for the purpose of enabling a small number of other companies to profit by harming Americans' health and environment in the same way.

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[6] EPA Response E-mail to Tennessee Tech Regarding EPA Test Procedures 11.28.17, https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4272

[7] HD Chassis Glider Final Report 11202017, https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417

[8] Muncrief and Miller, "Scott Pruitt's EPA wants to resurrect the dirty diesel", The ICCT, Dec 2017. https://www.theicct.org/blog/staff/glider-proposal-means-resurrecting-dirty-diesel

Although the EPA did not conduct an impact assessment as part of the development of this proposal, emissions and resulting health impacts are mentioned in various places throughout the document.

1. Section II, Part C. EPA's proposal cites a petition submitted by the glider industry which claims that glider truck emissions are lower than the EPA's original analysis (conducted as part of the development of the HDV GHG Phase 2 Regulation) originally suggested. This claim by the glider industry was based on a study conducted by Tennessee Tech University. ICCT has analyzed the publicly available information on this study and found the study to lack technical credibility for a number of reasons (1) the TTU study did not measure PM emissions which was one of the two pollutants it claimed to assess, (2) the TTU study did not report emissions of NOx from its study except to say that the NOx emissions they measured ranged from 2 to 32 times the emissions limit for modern engines, (3) the TTU study claimed to find that "glider kit HDVs would emit less than 12% of the total NOx and PM emissions" for all Class 8 HDVs, not the one-third of all NOx and PM that EPA estimated. However, they gave no explanation of how they came to this conclusion—no information about what glider truck sales volume they assumed, no information about what NOx and PM emissions level they assumed for the glider trucks, and no information about what year their calculations reflect, (4) these results are in direct contrast with emissions testing results published by the EPA themselves (as referenced above) which found that glider truck emissions are significantly higher than emissions from modern diesel trucks, (5) as confirmed by EPA (referenced above) it is not technically feasible for a glider truck engine with no emissions control to have emissions comparable to a modern, emissions compliant, engine. More details of our analysis of the TTU study can be found in a recent ICCT blog that can be found on our website[9] and is also attached as an appendix to this document for further reference.
2. Section V, Part 8**.** Here EPA argues that Executive Order 13044 "Protection of Children from Environmental Health Risks and Safety Risks should not apply since the proposal is not an "economically significant regulatory action". An economically significant regulatory action is defined as having "*an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;*". It is not possible for EPA to have concluded that this proposal does not constitute an economically significant action due to the fact that, as previously mentioned, no impact assessment was performed by EPA. ICCT's analysis found that this proposal would result in more than 12 billion dollars in health damages over the next decade, an average of over 1.2 billion dollars per year which far surpasses the threshold for economic significance. Therefore, it is our belief that EO 13045 should apply.

[9] Muncrief, "Glider industry petition in support of glider trucks debunks itself", The ICCT, Dec 2017. https://www.theicct.org/blog/staff/glider-industry-petition-support-glider-trucks-debunks-itself

EO 13045 dictates that each Federal agency:

(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and
(b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Again, EPA did neither by neglecting to perform an impact assessment of their proposal. In fact, EPA acknowledges in their proposal that "some benefits for children's health…would be lost as a result of this action." Ideally, EPA would reconsider this proposal to ensure it is in line with EO 13045.

3. Section V, Part 11. In this section EPA addresses compliance with Executive Order 12898: "Federal Actions to Address Environmental Justice in Minority Populations, and Low-Income Populations". EPA notes that it did no additional analysis to consider how this proposal might impact minority or low-income populations. This again points to the highly unusual choice by EPA to not conduct an impact assessment for this proposal. As ICCT's analysis has shown, the proposal will result in US citizens being exposed to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade. These emissions exposures will be disproportionally felt by those living closer to roadways and those living in urban centers. As EPA discusses in Section VIII.A of the Phase 2 HDV GHG Regulation "on average, populations near major roads have higher fractions of minority residents and lower socioeconomic status". ICCT believes that EPA should conduct an assessment to determine the impact this proposed regulation would have on minority and low-income populations.

Legal Analysis

As stated in Section III, Part A, the proposal to overturn the glider truck provisions is based on one argument: that EPA has reinterpreted the Clean Air Act and determined that glider trucks should not be classified as "new motor vehicles", and therefore EPA does not have authority under the CAA to regulate glider trucks and their engines. This is an unreasonable and impermissible interpretation of the Clean Air Act for a number of reasons. ICCT has coordinated with legal counsel to conduct a legal interpretation of the EPA's rationale for the statutory reinterpretation in this proposal. This legal document is attached as an annex to our comments. Below is a "lay person" summary of the legal counsel's findings.

In the Phase 2 HDV GHG Regulation, EPA presented a detailed summary as to where they derive their authority to enact the regulation including the authority to regulate emissions from glider trucks. This summary is presented in Section I.E.(1) (81 FR 73512-73519) of the regulation.

In short EPA's authority is derived from Title II of the Clean Air Act, which covers emissions from mobile sources. The CAA states that EPA has authority to regulate (1) pollutants from new motor vehicles, (2) pollutants from engines in new motor vehicles, and (3) pollutants from rebuilt heavy-duty engines. In the Phase 2 regulation EPA argues that (1) gliders fit the definition of a new motor vehicle due to the fact that they are sold and advertised as new and that the purchaser of the glider truck takes the initial title to that truck, (2) although the glider engine is a used part, that does not limit EPA from regulating its emissions once it is placed in a new truck since the CAA simply defines "new motor vehicle engine" as an engine in a "new motor vehicle" and does not exclude used engines from being considered as new in this context, (3) notwithstanding the previous two arguments, all engines being used in glider trucks are rebuilt engines and the EPA has explicit authority in the CAA to regulate pollutants from rebuilt engines.

In this proposal to repeal the emissions requirements for glider trucks, EPA attempts to argue that Congress did not specifically consider glider trucks when they defined "new motor vehicle" under Title II of the CAA. EPA argues that the definition of new motor vehicle used in the CAA was very similar to the definition already being used in the Automobile Information Disclosure Act (AIDA) of 1958. And that being the case, they believe that in the CAA Congress at the time only intended new motor vehicles to mean "showroom new" vehicles and not new vehicles with used/rebuilt engines.

EPA's argument is faulty for a number of reasons

(1) EPA possesses explicit authority under the clean air act to regulate emissions from rebuilt engines. This authority is never challenged or even mentioned in EPA's proposal.
(2) Glider vehicles are initially titled when sold to the ultimate purchaser, and are explicitly advertised as such. EPA never argues otherwise. Therefore, glider vehicles are new motor vehicles as defined by the straightforward definition given in the CAA: "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser."
(3) Under Title II of the CAA Congress explicitly allowed that new motor could include used parts including used engines.
(4) At the time of passage of the CAA, glider vehicles did exist and were considered new vehicles by the IRS for federal excise tax purposes.
(5) AIDA and the CAA were enacted for completely different purposes and there is no evidence presented that Congress was informed by AIDA when developing the CAA. The purpose of AIDA was to address fraud occurring in the showroom of new car dealers. Therefore, AIDA only covered a subset of new automobiles (those that are delivered by manufacturers to new car dealers) and does not cover the broad range of vehicles (including cars sold directly to the end user by the manufacturer, trucks, ships, construction equipment, etc) covered under the CAA.
(6) For a reinterpretation such as this to be permissible it must serve the statute's objectives (protecting the public health and welfare). In this case the statute in question is Title II of the CAA. EPA presents no evidence as to how this reinterpretation could serve the objectives of the CAA.

ATTACHMENTS

Glider industry petition in support of glider trucks debunks itself

Posted Wednesday, 29 November 2017, 17:32
Rachel Muncrief

It's not the most important or even the worst thing about the Pruitt EPA's proposal to reverse course on closing a loophole in the emissions regulations for heavy-duty vehicles that left "gliders"—that is, a remanufactured engine in a new chassis—uncovered. But the summary of a "study" that the glider industry submitted to EPA to support its claim that the agency was wrong in the first place about how dirty gliders are is fingernails-on-a-chalkboard aggravating to us at the ICCT. It's sketchy work presenting partial information as though it's serious and credible technical analysis meant to honestly inform a public debate, when its real effect is to obfuscate and confuse.

We'll have more to say about the consequences of the Pruitt EPA's proposal. For now I just want to briefly point out why this part of justification being offered for reversing EPA's earlier action is bogus.

The remanufactured engines used in gliders are most often what's known as “pre-emissions”—that is, built in the 1990’s and early 2000’s, before regulation set strict limits on nitrogen oxide (NOx) and particulate matter (PM) emissions (and other pollutants) in new heavy-duty diesel engine exhaust. A decade ago there were a few hundred gliders built annually in the entire U.S., to deal with cases where something (like an accident) wrecked a truck chassis but left the powertrain usable. Today, annual sales of gliders are over 10,000 units, approximately 5% of all the Class 7 and 8 tractor sales, according to the best estimates we have, and climbing fast. The reason for that surge in sales was pretty obviously people wanting to evade the emission control standards.

So when the EPA put out Phase 2 of the HDV greenhouse gas rule, in 2014, it also limited glider sales, to ensure that the air quality and health benefits from the NOx and PM limits for heavy diesel engines were not undermined. At the time, EPA estimated that without a sales cap glider emissions would represent “about one third of all NOX and PM emissions from heavy-duty tractors in 2025.” That estimate reflected assumptions that gliders, in the absence of any restrictions, would continue to be about 5% of the heavy-duty tractor fleet and that “gliders emit at the level equivalent to the engines meeting the MY 1998–2001 standards since most glider vehicles currently being produced use remanufactured engines of this vintage.”

The glider industry's bid to overturn the limit on sales rests in part on an argument that EPA should not have assumed that emissions from a remanufactured engine installed in a new chassis would be on par with the emissions standard from the year the engine was manufactured. And they submitted a letter from the president of Tennessee Technological University saying that a study of heavy-duty engine emissions done there purportedly cast doubt on EPA’s emissions calculations.

No complete report of this Tennessee Tech study seems to be available anywhere, so all we have to go on is the four-page summary included as an exhibit in the industry ("petitioner’s") request to EPA. And it's rife with unexplained claims and contradictory statements.

But the first problem is what the summary doesn't contain, which is anything at all about the test methodology. There are two pieces of information that are always supplied when research laboratories describe a vehicle or engine emissions test, even in summary form: information on the test equipment and information on the test cycle. The Tennessee Tech summary includes neither. But apparently EPA staff did meet with Tennessee Tech staff to discuss details of the test protocol and the notes from the discussion were recently posted in the docket. The notes confirm that Tennessee Tech’s test lab was unable to measure particulate emissions from diesel engines, even those that were not equipped with any particulate filter. Tennessee Tech’s own description of their lab makes it clear that they are not

anywhere close to being equipped to follow certified emissions testing protocols that have been in place for decades. And it means that the "study" doesn't even empirically assess one of the two main harms from the explosion of glider sales that EPA intended to address—particulate matter emissions.

The EPA's concern in Phase 2 was regarding how much NOx and PM emissions from glider trucks would increase in the absence of a sales cap. Not only was Tennessee Tech unable to measure PM emissions, the summary doesn't report NOx emissions measurements from the "study" except to note that they ranged from 0.44 to 6.45 grams per horsepower-hour (g/HP*hr) — that is, between 2 times and 32 times the NOx limit for post-2010 engines! Not only does that not call into question EPA's Phase 2 assumptions; it confirms them.

The summary reports in detail only carbon monoxide measurements, which EPA didn't focus on. Apparently the Tennessee Tech "study" found no statistical difference between the CO emissions from new and remanufactured engines, which suggests that new and remanufactured engines of the same model year would have the same emissions levels—again, exactly in line with the assumptions made by EPA when calculating the potential emissions impact from glider trucks in the absence of standards.

So on the basis of a study done at an emissions testing lab that was unable to measure PM emissions, which measured NOx emissions as much as 32 times the limits in place since 2010, and which measured CO at levels that confirm the reasonableness of EPA's assumptions concerning emissions from new and remanufactured heavy diesel engines, the glider industry argues (and the Pruitt EPA seems prepared to agree) that “glider kit HDVs would emit less than 12% of the total NOx and PM emissions” for all Class 8 HDVs, not the one-third of all NOx and PM that EPA estimated. They give zero explanation of how they came to this conclusion—no information about what glider truck sales volume they assumed, no information about what NOx and PM emissions level they assumed for the glider trucks, and even no information about what year their calculations reflect.

A number of ways come to mind to characterize that kind of technical analysis. Here let me just say that nothing presented in the Tennessee Tech letter supports the glider industry's claim that the analysis for the Phase 2 rule was incorrect and assertion that glider trucks would emit a lower fraction of Class 8 NOx and PM emissions than EPA estimated initially. It's disappointing to contemplate that the Pruitt EPA's proposal to reverse that part of the Phase 2 rule could be based even in part on this sort of representation.

TAGS: *Air quality / Vehicle emissions standards / U.S. heavy-duty vehicle standards*

Previous Post

Batteries or fuel cells: Who's in it for the long haul?

Next Post

Scott Pruitt's EPA wants to resurrect the dirty diesel

Scott Pruitt’s EPA wants to resurrect the dirty diesel

Posted Friday, 1 December 2017, 11:43
Rachel Muncrief and Josh Miller

Can’t get enough of zombie movies? Well, get ready for a real-life version. Scott Pruitt’s EPA is bringing the oldest and dirtiest diesel engines back from the dead—but disguising them in a shiny new host body. How? In the form of the innocuous-sounding glider truck.

From the outside, a glider looks like any other modern Peterbilt, Kenworth, Freightliner, or Western Star semi tractor. But look under the hood and things start to get terrifying. Inside you will find an engine that was thought to be long dead—an engine that emits uncontrolled levels of nitrogen oxides (NOx) and particulate matter (PM).

Make no mistake, the engines inside these glider trucks are literally killers. The American Cancer Society lists diesel exhaust as a Group 1 known carcinogen to humans, alongside things like asbestos and radiation. In addition to lung cancer, long-term exposure to diesel exhaust has been linked to stroke, heart disease, pulmonary disease, chronic respiratory illnesses, asthma, bronchitis, and infections. And these killers always pick off the weakest ones first: children, the elderly, the sick.

The EPA itself has many times acknowledged the harmful effects of diesel exhaust, and has gone to great lengths to tackle it. Thanks to EPA regulations, NOx and PM emissions from modern diesel engines are more than 90% below what they were 15 years ago. In just the past 10 years, EPA's actions have led to a greater than 50% drop in PM2.5 and NOx emissions from the country's on-road vehicle fleet. Put that a different way: about a third of the total PM2.5 reduction across all pollution sources since 2007, and more than half of the total NOx reduction, have come from

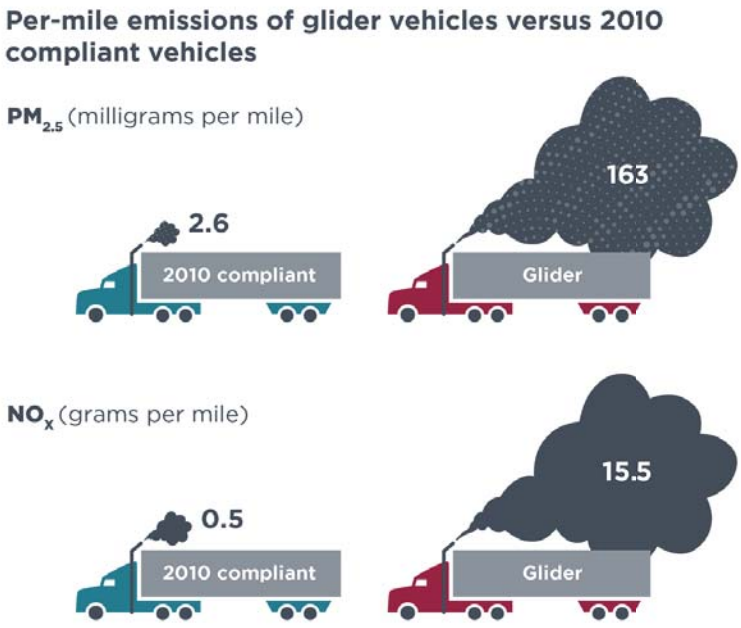
cleaning up heavy truck exhaust. As a result, air quality in the US has improved substantially: average concentrations of PM2.5 and ozone have dropped by 35% and 13% over that same time frame.

Such a record of success might make you think that those old killer diesel engines are a thing of the past. Wrong.

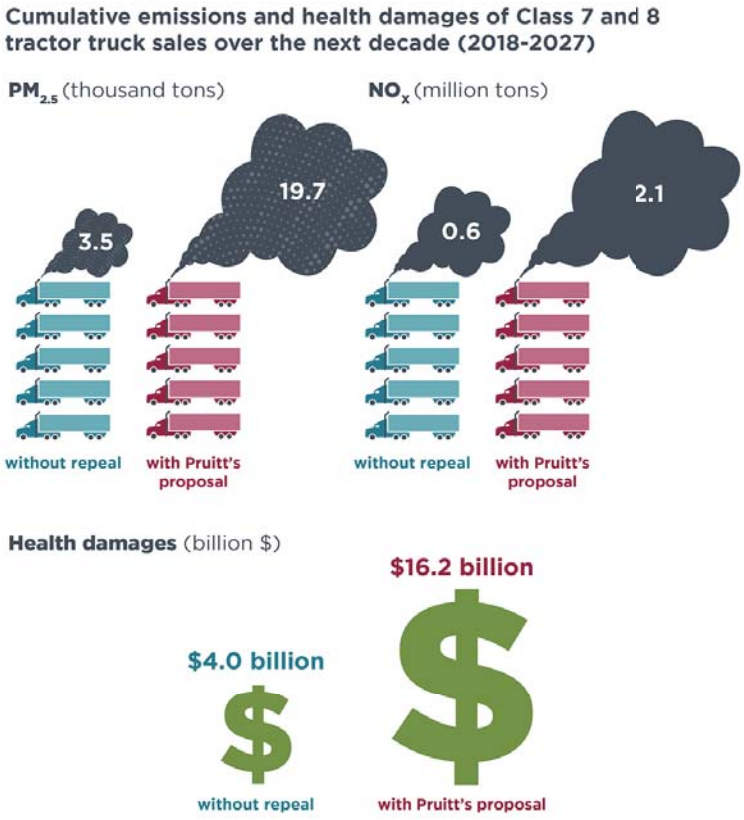
Scott Pruitt's EPA has proposed to allow the unfettered sale of glider trucks, reopening a loophole that the previous EPA administrator, Gina McCarthy, had sought to close. Sales of glider kits have increased exponentially in recent years because some unscrupulous but savvy entrepreneurs realized that there was a massive gap in the law: while it limited pollution from new engines, it did nothing to regulate emissions from these undead remanufactured engines when they were housed in new truck bodies. Glider trucks are sold at a 25 percent discount compared to trucks with modern engines, a huge incentive to their infiltration of the new vehicle fleet. That discount is ultimately paid for with human lives.

What would the Pruitt EPA's proposal mean for air quality? We ran the numbers, and the results are scary. According to the EPA's own testing, a single glider truck emits 30 times the NOx and 60 times the PM of a modern truck. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up an order of magnitude from 10 years ago. If these numbers continue to grow, even at a moderate level, Scott Pruitt's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions, equivalent to more than 12 billion dollars in health damages over the next decade. To put this into perspective, those additional NOx emissions are 13 times what the impact of the Volkswagen fraud in the United States would have been if all 482,000 VW diesel cars sold with defeat devices before the EPA and CARB put a stop to it were driven until they died of natural causes.

If Pruitt succeeds, the next time you're driving down the interstate and see what looks like a brand new tractor-trailer, keep an eye out for a plume of black smoke. Lurking beneath the hood could be one of the living dead.



Per-mile emissions of glider vehicles versus 2010 compliant vehicles. Results are derived from chassis dynamometer testing conducted by US EPA's National Vehicle & Fuel Emissions Laboratory (November 20, 2017). Results reflect a 95% weighting of highway activity (55 and 65 mph cycles) and 5% weighting of transient activity (ARB transient) for a test vehicle with a combined weight of 60,000 pounds (including the tractor, trailer, and payload).



Cumulative emissions and health damages of Class 7 and 8 tractor truck sales over the next decade (2018-2027). Estimates without repeal assume glider vehicle sales without 2010 emissions compliant engines drop to 1,000 units per year from 2018 to 2020 and to zero starting in 2021. Estimates with Pruitt's proposal assume sales of glider vehicles with pre-2002 engines are permitted to grow from approximately 10,000 units per year in 2015 to 17,400 units per year in 2027 (10.4% of total sales). Annual total sales and vehicle-miles traveled by tractor-trailers are sourced from US EPA's Motor Vehicle Emission Simulator (MOVES2014). Monetized health damages (in billion 2017 $) are equal to ICCT estimates of direct PM2.5 and NOX emissions from Class 7 and 8 tractor trucks sold in 2018 and later, multiplied by US EPA estimates of damages per ton of direct emissions from on-road mobile sources in 2016. Damages in future years are converted to present value terms using a discount rate of 5% per year.

TAGS: *Air quality / Vehicle emissions standards / U.S. heavy-duty vehicle standards*

Previous Post

Glider industry petition in support of glider trucks debunks itself

Legal Comments on EPA's November 2017 Proposal to Repeal Emissions Requirements for Glider Vehicles, Glider Engines, and Glider Kits

EPA's 2017 proposal is grounded solely on the statutory interpretation that glider vehicles are not "new motor vehicles" for purposes of section 202 (a) (1) of the Act and therefore EPA is without authority to control pollutant emissions from the vehicles or their engines.[10] The proposal is wrong. As discussed below, EPA possesses explicit authority to control pollutant emissions from the rebuilt heavy duty diesel engines used in glider vehicles under section 202 (a)(3)(D), which it exercised in the 2016 Final Rule to control emissions from rebuilt engines in glider vehicles.[11] In any case, the proposal to reinterpret the Act to say that glider vehicles are not new motor vehicles is devoid of legal merit.

I. EPA has authority to regulate Glider Vehicles as New Motor Vehicles

A. EPA's 2016 Final Rule

Section 216(3) of the Act defines "new motor vehicle" as "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." A glider vehicle clearly meets this definition - it is a motor vehicle, and the equitable or legal title to it has never been transferred to an ultimate purchaser. Glider vehicles are initially titled when sold to the ultimate purchaser, and are explicitly advertised as such. Glider vehicles are not a used vehicle whose owner has repair work done and keeps title to the vehicle. It is a unique and distinct vehicle never before assembled, sold, or owned. It is a combination of new components and used components, where the purchaser is the prior owner of neither the new components nor the

[10] 82 FR 53442 (November 16, 2017) ("2017 Proposal").
[11] 81 FR 73478 (October 25, 2016) ("2016 Final Rule").

used components. No person has previously held title to this assembled vehicle for purposes other than resale. The assembled glider vehicle clearly satisfies the plain meaning of the definition of new motor vehicle.

This straightforward application of the definition of new motor vehicle is the only correct interpretation. Nothing in the criterion on passage of title to the ultimate consumer makes any reference to whether the components of the vehicle are new or used. The criterion is just passage of title, with no other limitation on the history of the components prior to passage of title. Where no ultimate consumer has ever had title to the vehicle, the vehicle is a new motor vehicle. That is the case for glider vehicles.

Other provisions in the definition also show that Congress intended a new motor vehicle could include used components. The definition is clear that a new motor vehicle may include a used engine.[12] The definition also covers all imported vehicles, clearly including used vehicles. On its face the definition of new motor vehicle is not limited to vehicles that have only new components and no used components.

EPA's interpretation clearly promotes the purposes of the Clean Air Act and its Title II provisions. Title II reflects Congress' intention to authorize EPA to establish a national motor

[12] EPA appears to argue this cannot be the case, because Congress routinely used the term new motor vehicle and new motor vehicle engine together. See 83 FR at 53446. However the definition of new motor vehicle engine is clear - a new motor vehicle can include an engine whose title has already been transferred to the ultimate purchaser. See CAA section 216 (3) and 81 FR at 73514, 73518. The agency simply asserts that since a glider vehicle cannot be a "new motor vehicle", a used engine installed in it cannot make a used engine a new one, dismissing the contrary position as "circular thinking". 82 FR 53446. This merely reiterates the agency's belief that a glider vehicle cannot be new. But the two-part definition of "new motor vehicle engine" necessarily means that an engine can be "new" even if previously sold if it is installed in a vehicle that is new in other respects. This includes a glider vehicle. Any other reading would distort the meaning of "any engine" to mean only "any new engine", eliminating a whole class of engines from the statutory definition in derogation of the normal tenets of statutory construction.

vehicle control program to address the serious and widespread problems of air pollution caused by motor vehicles. Congress recognized motor vehicles as major contributors to the Nation's air pollution problems, and provided broad, flexible, and comprehensive authorities to EPA to develop a national program to address this air pollution problem. The text of the definition of new motor vehicle reflects the broad scope of vehicles subject to EPA standard setting, and the standard setting provisions of section 202 provide the flexibility for EPA to develop appropriate solutions to this diverse and multi-faceted source of air pollution. EPA's 2016 Final Rule recognizes the very serious air pollution problem specifically attributable to glider vehicles and applies the definition of new motor vehicle in a straightforward way, allowing EPA to exercise its discretion and set reasonable and appropriate controls, taking into account the costs and other impacts on the regulated parties.

In the final rule, EPA properly interpreted the statutory language to mean exactly what it says, finding that glider vehicles are new motor vehicles. EPA's interpretation is consistent with Congress' clear intention and furthers the purposes of the Act. EPA is clearly authorized to adopt reasonable and appropriate controls for glider vehicles under section 202(a)(1) of the Act.

B.EPA's 2017 proposal

EPA's 2017 Proposal rejects this reasoned approach. Instead, EPA argues that ''it would seem clear that Congress intended, for purposes of Title II, that a 'new motor vehicle' would be understood to mean … a true 'showroom new' vehicle. It is implausible that Congress would have had in mind that a 'new motor vehicle' might also include a vehicle comprised of new body parts and a previously owned powertrain." 82 FR at 53446. EPA takes this view even though the proposal admits that glider vehicles are new motor vehicles based on the statutory criterion of first transfer of title to the ultimate purchaser. 82 FR at 53444, 53445. EPA reaches its

conclusion without any reference to or reliance on legislative history, other Clean Air Act provisions, or the Clean Air Act's statutory purposes. Instead, EPA relies on erroneous and improper approaches to statutory interpretation, which themselves do not support EPA's proposal, and fails to even discuss the statute's purposes.

EPA asks whether, at the time of enactment, Congress had the specific intention to include glider kits and vehicles or vehicles like them in the definition of new motor vehicles. In effect, EPA asks whether Congress specifically had glider kits and vehicles in mind when it adopted the definition of new motor vehicle.[13] This is not a proper approach to statutory interpretation. The question for purposes of *Chevron* step 1 is not whether, at the time of enactment, Congress was consciously thinking about one fact specific, future application of a statutory definition that was designed to address potentially hundreds or more fact specific applications over many decades of implementation. The Supreme Court rejected this approach in *State of Massachusetts v. EPA,* 549 U.S. 497, 532 (2007)("the broad language of [CAA] § 202(a)(1) reflects an intentional effort to confer the flexibility necessary to [address changing circumstances and scientific developments] … [T]he fact that a statute can be applied in situations not expressly anticipated by Congress does not demonstrate ambiguity. It demonstrates breadth.") The definition of new motor vehicle reflects this flexibility and breadth.

The appropriate question for purposes of *Chevron* step 1 is whether Congress expressed a clear intention on the broader issue of whether a new motor vehicle could include used

[13] See 82 FR at 53445 ("whether or not Congress, in defining 'new motor vehicle' for purposes of Title II, had a specific intent to include within the statutory definition such a thing as a glider vehicle") and ("[L]ikely that Congress did not have in mind that the definition would be construed as applying to a vehicle comprised of new body parts and a previously owned powertrain), id. at 53446 ("[I]t is implausible that Congress would have had in mind that a ''new motor vehicle'' might also include a vehicle comprised of new body parts and a previously owned powertrain").

components. The statute indicates clearly that Congress specifically intended that new motor vehicles could include used components. As discussed above, the criterion of first transfer of title draws no distinction with respect to the kinds of components in the vehicle, the definition expressly states that used engines can be in a new motor vehicle, and used imported vehicles are considered to be new. EPA's interpretation in the 2016 Final Rule is consistent with this clear Congressional intent, and EPA's 2017 Proposal requiring "showroom new" vehicles is not.

EPA's 2017 Proposal also errs because it rejects the intention of Congress, expressed in the clear and straightforward language of the definition, based on extraneous materials with no ties to the legislative history or to other parts of the Clean Air Act. EPA relies on two claims: (1) there was limited use of glider kits at the time of enactment, therefore Congress could not have had them in mind when it adopted the definition of new motor vehicle, and (2) Congress' intention at the time of enactment must have been consistent with a separate labeling statute because of similarities in the definitions in the statutes. Neither of these sources is discussed anywhere in the legislative history, nor is there any evidence Congress ever considered them. They provide no basis to reject the straightforward evidence of Congressional intent provided by the actual statutory text.

The evidence provided by these extraneous sources, even assuming they are relevant, provide further support for EPA's interpretation in the 2016 Final Rule, not EPA's proposal. EPA first argues that Congress did not have glider vehicles in mind at the time of enactment because "[t]he manufacture of glider vehicles to salvage the usable powertrains of trucks wrecked in accidents goes back a number of years. But only more recently—after the enactment of Title II—have glider vehicles been produced in any great number." 82 FR at 53445.

However, the contemporaneous understanding at the time of passage of the Clean Air Act, even if relevant, was that glider vehicles were considered new vehicles. The Internal Revenue Service treated a glider vehicle as a new vehicle for federal excise tax purposes, which position was upheld on judicial review. See *Boise National Leasing, Inc. v. United States*, 389 F.2d 634, 636-37 (9th Cir. 1968).[14] If anything, this shows Congress would likely have considered glider vehicles to be new motor vehicles when it enacted the CAA's definitions.

EPA next argues that similarity in the definitions used in the CAA and the Automobile Information Disclosure Act of 1958 (AIDA) shows that "Congress intended … that a 'new motor vehicle' would be understood to mean something equivalent to a 'new automobile'—i.e., a true 'showroom new' vehicle."[15] EPA's argument relies on flawed logic, and its analysis is superficial and incomplete. 82 FR 53446. Even if AIDA is relevant here the proposal ignores the other textual provisions of AIDA and how they interact, and does not consider the critical differences between the CAA and AIDA in text and Congressional purpose. These differences indicate that Congress did not adopt AIDA's narrow and limited approach, and instead adopted a broader more expansive legislative solution in CAA Title II.

First, EPA's reference to "showroom new" clearly refers to the showroom of a new car dealer. AIDA's legislative history indicates that this is the focus of AIDA. See *Baltimore*

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[14]The Internal Revenue Service imposed an excise tax on manufacturers of new trucks made from glider kits. This tax applied when a "taxpayer purchased … in packaged or "glider kit" form, all the necessary new elements, including frame, cab, brake system, etc. … and then had the structuring and assembling processes done by a third party." The glider kit process resulted in a "new truck entity having been produced, and not a repairing or reconditioning of the old truck," and the manufacturer of the new truck entity was subject to the excise tax. 389 F. 2d at 636-37.

[15] 83 FR at 53446.

Luggage Company v. FTC, 296 F. 2d 608 (4th Cir. 1961), decided several years before adoption of the CAA. The problem Congress addressed in AIDA was fraud and deception occurring in the showroom of new car dealers, and it crafted a narrow solution to address it. The result was a requirement for a window label for new cars shown by new car dealers in their showrooms. However this focus on dealers and their showrooms was not driven by AIDA's definition of "new automobile," but by other provisions of that law. That focus derives from a separate section, the requirement that manufacturers affix the window label to a new car prior to delivery of the vehicle to a dealer.[16]

In effect, Congress defined new automobile broadly in AIDA, but then narrowed the labeling requirement by limiting it to only those new automobiles delivered to new car dealers. For example, a new car sold directly by a manufacturer would not be subject to the labeling requirement. While that kind of distribution would not typically occur, this example makes clear that the definition of new automobile is not what ties AIDA to "showroom new" cars; a different section of the law achieves this result. The text of AIDA does not support EPA's reasoning and conclusion, which relies on the AIDA definition by itself.

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[16] "Every manufacturer of new automobiles distributed in commerce shall, prior to the delivery of any new automobile to any dealer, or at or prior to the introduction date of new models delivered to a dealer prior to such introduction date, securely affix to the windshield, or side window of such automobile a label on which such manufacturer shall endorse clearly, distinctly and legibly true and correct entries disclosing the following information concerning such automobile" (emphasis supplied) 15 U.S.C. 1232. The enforcement for this labeling requirement is addressed in 15 U.S.C. 1233.

The CAA and AIDA differ in many important ways, and it is clear that in the CAA Congress did not take the narrow approach used in AIDA and did not focus on the subset of vehicles presented for show in new car dealer's showrooms.

(1) The CAA's Title II provisions address a much broader societal problem – air pollution problems, reaching broadly across the country - while AIDA addresses a specific consumer information problem involving just new car dealers.

(2) Unlike AIDA, the CAA's definition of new motor vehicle covers many more kinds of vehicles than passenger cars. The CAA covers all kinds of cars and trucks, from the smallest passenger car to the largest commercial tractor trailer. It covers many more kinds of manufacturers and their distribution networks, the ways in which new cars or trucks are sold to their buyers. The vehicles and their manufacturing and distribution networks are more varied than the limited world of manufacturer deliveries of passenger cars to new car dealers.

(3) Unlike AIDA, the definition of new motor vehicle is not limited to a line drawn based on the transfer of title to an ultimate purchaser. As explained above, the definition of new motor vehicle is broader in scope, and it is clear that a new motor vehicle may include an engine whose title has already passed to an ultimate purchaser, that is, a new motor vehicle may include a used engine. In addition, it includes all imported vehicles, new and used. Thus, on its face the definition of new motor vehicle is not limited to the kind of "showroom new" vehicles shown by new passenger car dealers.

(4) It is AIDA's manufacturer requirement that focuses AIDA on new car dealers' showrooms, not the definition of new automobile. The parallel manufacturer provision in the CAA, section 203(a), requires that a manufacturer obtain an EPA certificate of conformity before selling, offering for sale, introducing into commerce or delivering a new motor vehicle for introduction into commerce. Nothing narrows this prohibition or somehow limits Title II to vehicles delivered to a dealer for presentation in "showroom new" condition in their showroom. The CAA prohibition is much broader in scope than the labeling requirement in AIDA, properly reflecting the broader scope of the industries involved and the air pollution problem Congress was trying to solve.

Thus, even assuming without evidence that Congress was informed by AIDA, it is clear that Congress rejected the narrow AIDA approach and instead chose a broader and more expansive approach for the CAA.

The proposal maintains that the interpretation is "permissible" since "[a]t a minimum, ambiguity exists" in the statute. 82 FR at 53446. As explained above, there is no ambiguity and the statute directly contemplates that new motor vehicles can include used components, including non-new engines. But even assuming that this literal language does not compel EPA's reading in the 2016 Final Rule, the proposal fails to justify that the reinterpretation is "permissible" in terms of the statute's purposes. And for good reason. A permissible interpretation under *Chevron* step 2 must promote the statutory purposes of the provision and the statute being interpreted. See, e.g. *Council for Urological Interests v. Burwell*, 790 F. 3d 212, 222 (D.C. Cir. 2015) (an interpretation is permissible under *Chevron* step 2 if "it is a reasonable explanation of how an interpretation serves the statute's objectives"); *Northpoint Tech Ltd. v. FCC*, 412 F. 3d 145, 151 (D.C. Cir. 2005) (same). EPA makes no attempt to even consider

much less justify its proposed interpretation in terms of furthering the purposes of the Act and Title II. Most glaringly, EPA fails to consider or explain how a Congressional purpose of protecting the public health and welfare is promoted by leaving these ultra-high-polluting vehicles unregulated. EPA also fails to consider or justify its interpretation in terms of any of the purposes of the Act, and its proposed reinterpretation is impermissible on that ground alone.

In any case, there is no justification for EPA's proposal. It not only does not further the statutory purposes, it negates them. This proposal is antithetical to the core statutory objective of protecting public health and the environment from exposure to harmful emissions from motor vehicles, including from heavy duty vehicles and engines. See, e.g. CAA sections 202(a)(1), 202 (a)(3)(A) and (B); 202 (a) (3)(D); 213. It is likewise antithetical to the goals of attaining and maintaining the National Ambient Air Quality Standards by allowing unlimited, uncontrolled numbers of heavy duty vehicles emitting NOx and PM at rates 40 to 450 *times* higher than new engines. Title II stands as evidence that Congress did not regard the NAAQS as an excuse not to curb dangerous vehicular emissions, but saw control of motor vehicle pollution as a critical element of the statute's NAAQS program.

The purpose of Title II is to broadly empower EPA to regulate pervasive motor vehicle air pollution, calling for EPA to control it at its source when the vehicle is first manufactured. The broad scope of the kinds of vehicles covered is matched with clear discretion to adopt reasonable controls that are appropriate under the specific circumstances. EPA's proposed interpretation does the opposite – it would require EPA to ignore a very large and growing source of harmful air pollution from motor vehicles, and would strip EPA of any ability to address this problem through reasonable controls on the manufacturer of these new vehicles under CAA section 202(a)(1). Whether or not one agrees with the specific controls EPA adopted

in the 2016 Final Rule is not the issue. The issue is whether the purposes of section 202(a)(1) of the Act are promoted by totally precluding EPA from addressing in any fashion a major and growing source of motor vehicle air pollution, where the vehicles clearly meet the terms of the definition adopted by Congress. EPA's 2016 Final Rule properly promoted the purposes of the Act, but the agency's 2017 Proposal does just the opposite.

Finally, EPA's 2017 Proposal ignores the breathtakingly destructive consequences of its proposed reinterpretation. If a "new motor vehicle" is limited to vehicles that consist entirely of new parts, as EPA determines, then simply installing one or more used parts on an otherwise new motor vehicle would allow manufacturers to avoid all Title II requirements.[17] In addition to eviscerating all potential for controls over glider vehicles under section 202(a)(1), the proposal could eviscerate the remainder of Title II motor vehicle controls as well. Such an absurd result demonstrates the impermissibility of the proposed reinterpretation.

C. Conclusion

In short, the statute is unambiguous that glider vehicles are new motor vehicles. Even if the statute were ambiguous, the proposed reinterpretation is not permissible because it is directly contrary to the terms of the statute, the intention of Congress as expressed in the definition it adopted, and the core statutory objective of protecting public health and the environment from exposure to air pollution caused by motor vehicles, including heavy duty diesel vehicles and engines, through reasonable regulation of the manufacturers of new vehicles and engines.

II. EPA Has Explicit Authority to Regulate Emissions from rebuilt Heavy Duty Diesel Engines, and did so in the 2016 Final Rule

[17] Among others, the Engine Manufacturers Association noted this drastic consequence of the proposal in its December 4, 2017 public hearing testimony opposing the proposal.

Separate and apart from EPA's authority under Section 202(a)(1), EPA's assertion that it lacks authority over emissions from glider vehicles and engines is flatly wrong as the Act provides explicit authority to adopt regulations to control emissions from rebuilt heavy duty diesel engines. There is no dispute that glider vehicles use exclusively rebuilt heavy duty diesel engines. See, e.g. 81 FR 73518 n. 93 and RTC pp. 1879-1880. Section 202 (a)(3)(D) of the Act provides that "[t]he Administrator shall study the practice of rebuilding heavy-duty engines and the impact rebuilding has on engine emissions. On the basis of that study and other information available to the Administrator, the Administrator may prescribe requirements to control rebuilding practices, including standards applicable to emission from any rebuilt heavy-duty engines … which in the Administrator's judgment cause, or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare taking costs into account." EPA is also to consider lead time, cost of compliance, energy and safety factors. Id.

As the agency notes, EPA has previously adopted controls under this authority, (properly) citing 40 CFR section 1068.120; see also 86.004-40. 82 FR 53443 and n.2. However the proposal ignores that EPA also exercised this rebuild authority as a separate basis for the 2016 Final Rule on glider vehicle engines. See e.g. 81 FR 73518/1; 73519/1-2; 73944 n. 991; 73945/3; Response to Comment Background Document ("RTC") p. 1879. Therefore, the agency cannot revoke the provisions of the 2016 Final Rule concerning glider vehicle engines without revoking its prior exercise of the rebuild authority. EPA has nowhere indicated that it is revoking this prior exercise of rebuild authority, and has totally failed to explain or justify such an action, a fatal substantive and procedural deficiency. See *State Farm*, 463 U.S. at 42 (""an agency changing course must supply a reasoned explanation for the change beyond that which may be required when an agency does not act in the first instance"), and 43 (agency acts

arbitrarily when it "entirely failed to consider an important aspect of the problem"). No reasoned explanation for revoking this exercise of authority exists.

In short, EPA supported its 2016 Final Rule with a compelling justification, and there is no basis for EPA to revoke its exercise of authority over emissions from rebuilt diesel engines in glider vehicles. EPA's failure to consider this issue is itself arbitrary, and necessitates a reproposal should the agency still seek to amend any feature of the 2016 Final Rule to alter its substantive terms.