United States Senate

WASHINGTON, DC 20510

October 31, 2018

The Honorable Charles J. Sheehan
Acting Inspector General
U.S. Environmental Protection Agency
1301 Constitution Ave. NW, Room 3102
Washington, DC 20460

Dear Acting Inspector General Sheehan:

We ask that you broaden the scope of your ongoing audit[1] into glider vehicle testing conducted by the Environmental Protection Agency (EPA) in 2017 to include:

1. Former EPA Administrator Scott Pruitt's public announcement that he had decided to deregulate glider vehicles in part based on a discredited, industry-funded study;
2. The apparent decision to rush signature and publication on the proposed rule without waiting for EPA technical staff to review the likely health effects;
3. Last-minute changes to the proposed rule purposefully designed to avoid legally required economic and health analyses; and
4. An unprecedented promise from EPA on Mr. Pruitt's last day in office that the glider industry would not be required to comply with the rules that are on the books.

We are deeply troubled that EPA's legally questionable proposal — developed under highly irregular circumstances — would exempt manufacturers of the dirtiest trucks on the road from the Clean Air Act's public health protections.

Glider trucks, also known as "zombie trucks,"[2] look like new trucks on the outside—and are advertised and sold as new—but are equipped with old, high-polluting diesel engines on the inside. Glider trucks used to be a niche industry, with less than a thousand vehicles produced each year—primarily for engine-salvage purposes when relatively new trucks got in collisions. By 2015, however, "significantly over 10,000" glider vehicles were being sold, and almost every engine used to complete a glider truck is a rebuilt diesel engine originally manufactured between 1998 and 2002.[3]

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[1] Letter from Patrick Gilbride to William L. Wehrum, "Project Notification: Response to Congressional Requests on Glider Vehicle Testing" (Sept. 4, 2018), *available at* https://www.epa.gov/sites/production/files/2018-09/documents/_epaoig_notificationmemo_9-4-18_glidervehicle.pdf

[2] *See* Rachel Muncrief & Josh Miller, "Scott Pruitt's EPA wants to resurrect the dirty diesel," INTL. COUNCIL ON CLEAN TRANSP., Dec. 1, 2017, https://www.theicct.org/blog/staff/glider-proposal-means-resurrecting-dirty-diesel

[3] *See* EPA memorandum from Charles Moulis to William Charmley, "Summary of Glider Production Data" (Nov. 15, 2017) at 1–3, https://www.eenews.net/assets/2017/11/21/document_gw_05.pdf

EPA soon realized that, if left unregulated, by 2025 glider vehicles would create one-third of all NO_x and PM emissions from heavy-duty trucks, even though they would only comprise 5% of the heavy-duty tractor fleet. In its 2016 "Phase 2" medium and heavy-duty rule, after taking two rounds of public comment on whether and how to address glider vehicles, EPA finalized regulations that ensured the emissions from glider trucks would be reduced while minimizing disruption to the few companies that manufacture glider kits and vehicles.[4]
A few months after Scott Pruitt became EPA Administrator, he personally met with representatives of Fitzgerald Glider Kits, LLC (Fitzgerald),[5] the self-proclaimed, "largest glider kit dealer in the country"[6] and a political supporter of President Trump.[7] Shortly thereafter, Fitzgerald sent Mr. Pruitt a petition seeking reconsideration of the glider requirements,[8] and Mr. Pruitt also spoke with Congresswoman Diane Black, who has vocally supported the Fitzgerald Petition.[9] Among the materials presented to Mr. Pruitt were a "recent study by Tennessee Technological University," purporting to show that EPA based its conclusions about glider vehicle emissions on "unsupported assumptions," because glider vehicles actually performed as well or better from an emissions perspective than trucks with newer engines. [10]

Mr. Pruitt responded to Fitzgerald and two other glider manufacturers, saying that those claims of "unsupported assumptions" had raised "significant questions" about "the soundness of the EPA's technical analysis" regarding glider emissions, and that "in light of these [technical and legal] issues" EPA had "decided to revisit" the glider rules.[11]

On November 9, 2017, Mr. Pruitt signed a proposal to repeal emission standards for glider vehicles, glider engines, and glider kits, which was published on November 16.[12] On its face, that proposal was based on reinterpretations of definitional language in the Clean Air Act (CAA). Strangely, however, the proposal acknowledged that these reinterpretations were contrary to the CAA's plain language,[13] and did not cite any legislative history or judicial precedent interpreting CAA definitions.

Instead, the basis of the reinterpretation was the Automobile Information Disclosure Act of 1958—a sixty-year-old law regulating the placement of stickers on automobile windows—which does not apply to EPA, air pollution, or even heavy-duty trucks.[14]

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[4] *See* 81 Fed. Reg. at 73,941–46.
[5] According to records obtained by the Washington Post, Mr. Pruitt met with Fitzgerald representatives on May 8, 2017 (2:15pm): https://www.washingtonpost.com/apps/g/page/politics/epa-administrator-scott-pruitts-schedule-from-april-3-2017-to-sept-8-2017/2241/
[6] *See* "About Fitzgerald," FITZGERALD GLIDER KITS, https://www.fitzgeraldgliderkits.com/about-fitzgerald/
[7] *See, e.g.*, Eric Lipton, "How $225,000 Can Help Secure a Pollution Loophole at Trump's E.P.A.," N.Y. TIMES, Feb. 15, 2018, https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html
[8] https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf
[9] https://black.house.gov/media/press-releases/epa-intends-roll-back-job-killing-regulation-hurting-small-business-owners
[10] https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf
[11] https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-fitzgerald-gliders-ltr-2017-08-17.pdf
[12] 82 FR 53442.
[13] 82 Fed. Reg. at 53,444–45 (citing CAA section 216(3)) ("Focusing solely on that portion of the statutory definition that provides that a motor vehicle is considered 'new' prior to the time its 'equitable or legal title' has been 'transferred to an ultimate purchaser,' a glider vehicle would appear to qualify as 'new.'").
[14] 82 Fed. Reg. at 53,445–46.

Since the proposal was published on November 16, 2017, additional information has surfaced regarding legal, procedural, and technical irregularities surrounding the proposal and EPA's interactions with the glider industry. Mr. Pruitt's decision on his last day as EPA Administrator to issue an unprecedented "No Action Assurance" to the glider industry that essentially exempted the industry from the as-yet-unrevised emissions rules further suggests improper influence. Additionally, Assistant Administrator Wehrum has met with Fitzgerald's representatives two weeks before Scott Pruitt resigned (June 22, 2018), and again just last month (Sept. 7, 2018) — all while EPA is considering Fitzgerald's requested rule.[15] The purpose of those meetings is not known.

What follows is a summary of the procedural and substantive matters we request you examine:

I. Last Minute Rule Rewrites to Avoid Analyzing Impacts on Economy and Children's Health

According to interagency review documents uploaded to the rulemaking docket, EPA's proposal to repeal air emission requirements for glider vehicles was considered an "economically significant rule" under Executive Order 12866 because it would have an annual effect on the economy, environment, or public health and safety of at least $100 million. That makes sense because, in 2016, EPA estimated that unrestricted glider vehicles impose $6 to $14 billion in annual costs on society—60 to 140 times the amount necessary to trigger the required economic analysis under E.O. 12866.[16] Interagency commenters then noted that EPA's draft proposal did not conduct the requisite economic analysis for economically significant rules. Instead of going back and conducting that analysis, *on the afternoon the day before Scott Pruitt signed the proposal*, staff inserted the word "not" before "economically significant,"[17] thereby avoiding compliance with E.O. 12866.[18] EPA gave no explanation for this about-face, but the last-minute nature of the change suggests that it was not the product of any actual economic analysis.

The same $100 million trigger applies to E.O. 13045, "Protection of Children from Environmental Health and Risks," which requires EPA to evaluate the environmental health risks of rules that could disproportionately impact children, and explain why the regulation is "preferable to other potentially effective and reasonably feasible alternatives." Accordingly, this last-minute change also allowed EPA to gloss over the proposal's public health impact on children.[19] The existing Phase 2 rules had discussed at length how children's physiology, breathing rates, brain and body development, and behavior increase their susceptibility to vehicle air pollution compared to adults.[20] By contrast, the proposed glider emissions rollback rule merely asserts, without any further analysis or apparent concern, that "Some of the benefits for

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[15] https://www.epa.gov/senior-leaders-calendars/calendar-bill-wehrum-assistant-administrator-office-air-and-radiation
[16] 81 FR at 73,943.
[17] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2402
[18] *See id.* (showing a 12:05pm, 11/8/2017 change from "an economically significant regulatory action" to merely "a significant regulatory action"); *id.* (showing a 12:16pm, 11/8/2017 change in characterization of the proposal from "an economically significant regulatory action" to "not an economically significant regulatory action").
[19] *See id.*
[20] *See* 81 FR at 73966–67.

children's health as described in the [Phase 2 Rule] would be lost as a result of this action." Senator Carper asked the White House Office of Management and Budget (OMB) about these and other skipped analyses,[21] but has not received a satisfactory response. Press reports also indicate that EPA actually attempted to finalize the proposal, but that OMB rejected it for having failed to include the required Regulatory Impact Analysis.[22]

II. Problems with the Industry-Funded Glider Study

Shortly after EPA publicly proposed to repeal air emission requirements for glider vehicles, a November 2017 report conducted by EPA's technical staff found that these vehicles were not even close to being cleaner than modern trucks was placed into the rulemaking docket.[23] This report concluded that glider trucks with Fitzgerald-rebuilt engines emitted up to 450 times the PM pollution and 43 times the NO_x pollution of modern trucks.[24] The proposed rule itself makes no mention of the EPA study.

Subsequently, the interim dean of the College of Engineering at Tennessee Tech lambasted his own university's study as "farfetched" and "scientifically implausible."[25] Tennessee Tech faculty called for an investigation into research misconduct,[26] and it came to light that the study was not subject to peer review, and was paid for by Fitzgerald Glider Kits.[27] Tennessee Tech has suspended its relationship with Fitzgerald, and asked Mr. Pruitt not to "use or reference" the study pending the outcome of an official research misconduct investigation.[28] There were ample reasons to suspect research misconduct: The study was advertised as a product of Tennessee Tech's "Department of Civil and Environmental Engineering,"[29] despite the fact that it was apparently not overseen, written, reviewed, or verified by any "qualified, credentialed engineering faculty member."[30] And although the university president's letter said that all glider trucks "met the standard" for particulate matter,[31] study participants spoke by phone with EPA technical staff on November 7, 2017 and admitted they had taken no numerical measurements of

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[21] For example, EPA does not appear to have prepared the statutorily required economic assessment of the proposed rule pursuant to CAA section 317, which provides that, before publishing a proposed rule revising "any regulation establishing emission standards under section [201 of the Clean Air Act] and any other regulation promulgated under that section," the Administrator "shall prepare an economic impact assessment respecting such standard or regulation . . . ." Not only must that economic impact assessment be placed in the rulemaking docket, but the "[n]otice of proposed rulemaking" itself must "include notice of [the] availability" of that assessment and "an explanation of the extent and manner in which the Administrator has considered the analysis contained in such an economic impact assessment in proposing the action." Neither occurred here, and EPA has not explained why it skipped this legally required step.

[22] https://insideepa.com/daily-feed/omb-said-rebuff-final-epa-glider-plan-due-lack-ria

[23] EPA NATL. VEHICLE & FUEL EMISSIONS LAB., "Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles" (Nov. 20, 2017) at 3 [hereinafter "OTAQ Study"], https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417

[24] OTAQ Study at 14–15.

[25] https://www.documentcloud.org/documents/4378485-Combatting-Pollution-in-Diesel-Trucks-and-the.html#document/p217/a405776

[26] https://www.tntech.edu/assets/usermedia/facultysenate/resolutions/Resolution_on_Fitzgerald_Study_1-30-2018.pdf

[27] http://herald-citizen.com/stories/ttu-investigating-fitzgerald-study,25943

[28] https://assets.documentcloud.org/documents/4385345/Tennessee-Tech-president-s-letter-disavowing-the.pdf

[29] Letter from Phillip B. Oldham, President, Tenn. Tech. Univ., to Scott Pruitt, EPA Admin'r (Feb. 19, 2018) at 1.

[30] https://www.documentcloud.org/documents/4378485-Combatting-Pollution-in-Diesel-Trucks-and-the.html#document/p217/a405776

[31] Letter from Phillip B. Oldham at 1.

PM emissions—in fact, *they had not collected PM samples at all.*[32] Just last week, Tennessee Tech formally informed EPA that the study's conclusions "were not accurate."[33]

III. Inexplicable Industry Favors on Pruitt's Last Day in Office

On July 5, 2018, in the midst of a cloud of ethics scandals,[34] Scott Pruitt announced that he would be resigning as EPA Administrator. On the very next day, in Mr. Pruitt's last act as Administrator, the agency issued an extraordinary and unprecedented "No Action Assurance" letter, purporting to assure Fitzgerald and the few other glider manufacturers that, as a matter of "enforcement discretion," EPA would not enforce the law against glider manufacturers through 2019. EPA has a Reagan-era policy against such assurances because they "may erode the [EPA's] credibility" and "hamper later enforcement efforts."[35] Such actions are thus reserved for "extremely unusual cases," such as where necessary to avoid extreme risks to public safety.[36] Historically, EPA appears to have overwhelmingly used these assurances for emergency situations, like for power plants struggling to provide electricity to hurricane-stricken communities.[37]

The stated emergency in this last-day letter, however, was that the glider industry had been *preparing to violate the law* in reliance on a *proposed rule that had not yet been finalized.*[38] The entire purpose of notice-and-comment rulemaking is that the agency will approach the issue with an open mind and listen to feedback from all sides, and as such, EPA's reference to any reliance by the glider industry on an as-yet-un-finalized rule seemed ill-advised. Unsurprisingly, the D.C. Circuit quickly granted an emergency motion from states and environmental groups to stay the No Action Assurance letter.[39] Rather than defend the letter in court, Acting Administrator Wheeler withdrew it.[40] However, the proposed rule to repeal the emissions requirements remains pending.

In light of these procedural and other deficiencies, we ask that you expand your inquiry to include the following points:

1. The circumstances surrounding how the industry-funded "study" that is now the subject of an academic misconduct investigation was presented to Scott Pruitt.

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[32] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2416

[33] Specifically, the study's procedures were not sufficient to make comparisons between glider truck engines and modern truck engines, and even the data collected under those shoddy procedures did not support the study's conclusions. *See* https://www.tntech.edu/assets/pdf/2018-10-23-Letters-to-TFitzgerald-DBlack-EPA-Admin.pdf.

[34] https://www.cnn.com/2018/07/05/politics/scott-pruitt-epa-resigns/index.html

[35] Memorandum from Courtney M. Price, Ass't Admin'r for OECA, "Policy Against 'No Action' Assurances" (Nov. 16, 1984).

[36] *Id.* at 2.

[37] *See, e.g.*, https://www.epa.gov/newsreleases/epa-exercises-enforcement-discretion-mobile-power-generators-imported-use-puerto-rico-0

[38] *See* No Action Assurance at 2 (discussing glider manufacturers who have maxed out their production "in reliance on the November 16 NPRM"), *available at* https://www.epa.gov/sites/production/files/2018-07/documents/gliderno-actionassurance070618.pdf

[39] https://thehill.com/policy/energy-environment/397687-court-blocks-epa-policy-against-enforcing-truck-pollution-rule

[40] https://www.epa.gov/sites/production/files/2018-07/documents/memo_re_withdrawal_of_conditional_naa_regarding_small_manufacturers_of_glider_vehicles_07-26-2018.pdf

2. Scott Pruitt's reliance on that study as a basis for announcing on August 17, 2017 that "EPA has decided to revisit" the glider rules, including any efforts made by EPA to verify the results of the study prior to the decision to revisit the rules.

3. The decision in the proposed repeal to ignore its economic impacts and impacts on children's health, including by downgrading the proposal's economic significance less than 24 hours before signature.

4. The proposed rule's failure to conduct and docket economic assessments required by Clean Air Act section 317. That section provides that, *before* publishing a proposed rule revising "any regulation establishing emission standards under section [201 of the Clean Air Act] and any other regulation promulgated under that section,"[41] the Administrator "shall prepare an economic impact assessment respecting such standard or regulation . . . ."[42] Not only must that economic impact assessment be placed in the rulemaking docket, but the "[n]otice of proposed rulemaking" itself must "include notice of [the] availability" of that assessment and "an explanation of the extent and manner in which the Administrator has considered the analysis contained in such an economic impact assessment in proposing the action."[43]

5. The circumstances surrounding the development of the unprecedented No Action Assurance letter—issued in Mr. Pruitt's final hours as Administrator:

We have additionally attached previous correspondence we have sent to EPA and OMB on this topic, as well as numerous publicly available documents obtained via state and federal public records laws that provide limited insight into the process. Thank you for considering our request for a thorough review of these issues. Should you have any questions about this request, please contact Michal Freedhoff (michal_freedhoff@epw.senate.gov) or Jonathan Black (jonathan_black@tomudall.senate.gov).

Sincerely,

Tom Carper
United States Senator

Tom Udall
United States Senator

[41] 42 U.S.C. § 7617(a)(5).
[42] *Id.* § 7617(b).
[43] *Id.*

Milum, Anysa

From:	Davis, Mark
Sent:	Friday, January 06, 2017 10:58 AM
To:	Mohr, Benjamin
Cc:	Milum, Anysa; Brewer, Tom; [redacted]
Subject:	[redacted]

Ben,

[redacted] miscalculated the amount of research time spent testing needed for a complex and complete data summary based on the EPA's formula for the Fitzgerald project. Fitzgerald as you know was trying to establish baseline information to challenge the EPA's new glider kit regulations with a very tight deadline. This testing schedule included Fitzgerald' installation of dyno with [redacted] EPA's testing procedures and interfered with [redacted] Aerodynamics class. [redacted] accepts the responsibility for the conflict for the classes and Fitzgerald's Dyno Schedule that caused [redacted] to miss 4 days. At this point [redacted] is a critical to the success of this research entering into Phase II that includes and expands on the baseline data gathered in Phase I. [redacted] has reassured me that the classes chosen for spring will not conflict with the research days scheduled with Fitzgerald Phase II and [redacted] grade point average will rebound to reflect that. [redacted] undergraduate GPA shows consistent class performance and [redacted] reputation for excellence in project related research proves that [redacted] can rebound back from this set back.

Thanks,
Mark Davis
Academic Support Associate
Civil and Environmental Engineering
Box 5015 Cookeville, TN 38505
931-372-3211 Fax 931-372-6239
[redacted]
mwdavis@tntech.edu

(b) (5) OPP

[redacted]

Time	2:00 PM – 2:30 PM
Subject	Briefing re: Meeting with Tommy Fitzgerald
Location	Administrator's Office
Show Time As	Busy
	Handling: Ryan Jackson

Attendees	**Name <E-mail>**	**Attendance**
	(b)(6) Pruitt Cal. Acct. <(b)(6) Pruitt Cal. Acct.	Organizer
	Brown, Byron <brown.byron@epa.gov>	Required

Time	2:15 PM – 2:45 PM
Subject	Meeting with Tommy Fitzgerald
Location	Adminsitrator's office
Show Time As	Busy
	Topic: GHG phase 2 sale and assembly of Gilder Kits; goes into effect in Jan of next year and will put out hundreds of jobs
	Attendees: Tommy C. Fitzgerald, Tommy A. Fitzgerald (Jr.), Joe DePew , Don Shandy
	POC(b)(6) Tommy C. Fitzgerald email <mailto(b)(6) Tommy C. Fitzgerald email (b) (6)

Attendees	**Name <E-mail>**	**Attendance**
	(b)(6) Pruitt Cal. Acct. <(b)(6) Pruitt Cal. Acct.	Organizer
	Jackson, Ryan <jackson.ryan@epa.gov>	Required
	Brown, Byron <brown.byron@epa.gov>	Required
	Eric Vance (Vance.Eric@epa.gov) <Vance.Eric@epa.gov>	Required

Time	2:45 PM – 3:00 PM
Subject	Depart Office for White House
Show Time As	Busy

Time	(b) (5) OPP
Subject	[redacted]

EPA-17-0074-A-000267

RE

2017 JUL 11 AM 10: 01

OFFICE OF THE
EXECUTIVE SECRETARIAT

July 10, 2017

Scott Pruitt, Administrator
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule" to Gliders

Pursuant to 5 U.S.C. § 553(e) and 42 U.S.C. § 7607(d)(7)(B), Fitzgerald Glider Kits, LLC ("Fitzgerald"), Harrison Truck Centers, Inc. ("Harrison"), and Indiana Phoenix, Inc. ("Indiana Phoenix") (collectively, "Petitioners"), on behalf of the glider industry, hereby request that the Environmental Protection Agency ("EPA") reconsider the application of the final rule entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule," 81 Fed. Reg. 73,478 (Oct. 25, 2016) ("Phase 2 Rule"), to "gliders."[1]

Background

"Gliders" are medium- and heavy-duty trucks that are assembled by combining certain new truck parts (that together constitute a "glider kit") with the refurbished powertrain—the engine, the transmission, and typically the rear axle—of an older truck. The glider kit generally includes the tractor chassis with frame, front axle, cab, and brakes. 81 Fed. Reg. at 73,512. A glider is manufactured by combining the powertrain from the used vehicle with the parts in the glider kit.

Gliders are approximately 25% less expensive than new trucks, a significant cost savings for small businesses and owner-operators. Envtl. Prot. Agency & Dep't of Transp., Response to Comments for Joint Rulemaking ("RTC"), at 1846 (Aug. 2016) (comment of GATR Truck Center). Businesses and drivers that cannot afford a new truck often purchase gliders as an alternative to continuing to drive their older vehicle. *Id.* at 1825 (comment of Clarke Power Services). Glider kits can also extend the working life of a damaged vehicle. *Id.* Gliders also require less maintenance, yielding less downtime, and have modern safety features and amenities. *Id.* Overall, they offer a more economical option for smaller fleets and owner-operators to maintain the reliability of their commercial trucking operations.

In the Phase 2 Rule published October 25, 2016, EPA for the first time mandated that glider kits, glider vehicles, and rebuilt engines installed in gliders (hereinafter "gliders") satisfy

[1] The Phase 2 Rule was jointly promulgated by EPA and the National Highway Traffic Safety Administration ("NHTSA"), an agency within the Department of Transportation ("DOT"). Because Petitioners request reconsideration of only certain elements of the Phase 2 Rule that were promulgated pursuant to EPA's Clean Air Act authority, this Petition is directed to EPA, and not NHTSA or DOT.

emissions standards applicable to new motor vehicles and new motor vehicle engines. The regulations accomplish this by ignoring the age of the engine and other powertrain elements installed in gliders and applying instead emissions standards based on the "calendar year in which assembly of the glider is completed." 81 Fed. Reg. at 73,943; *see* 40 C.F.R. § 1037.635. In other words, if a glider assembler installs a reclaimed engine in a glider in 2017, that engine must be certified to comply with all emissions standards applicable to new engines from model year 2017, regardless of the actual model year of the engine. "This requirement applies to all pollutants, and thus encompasses criteria pollutant standards as well as the separate [greenhouse gas ("GHG")] standards." 81 Fed. Reg. at 73,943; *see* 40 C.F.R. § 1037.635.

Recognizing that the new standards applied to gliders in the Phase 2 Rule were both sudden and onerous, the Phase 2 Rule purports to provide some "transitional flexibilities," 81 Fed. Reg. at 73,942, but these provisions are not enough to prevent a devastating impact on the glider industry when the standards become almost fully applicable to gliders on January 1, 2018. In 2017, glider assemblers are permitted to produce a limited number of gliders exempt from the regulations. The number of gliders exempted in 2017 for any particular company is equivalent to the "highest annual production of glider kits and glider vehicles for any year from 2010 to 2014" by the company. 40 C.F.R. § 1037.150(t)(3). Because of the growth of their business since 2014, this provision has forced Fitzgerald, Harrison, and Indiana Phoenix to scale back production in 2017 to a certain degree, but it has allowed for continued operation. Beginning January 1, 2018, however, the 2017 regime is replaced with an allowance to build only 300 gliders per year that are exempt from the regulations. *Id.* § 1037.105(t)(1)(ii). This stringent production cap would effectively destroy the glider industry.[2]

Despite EPA's stated goal to reduce greenhouse gas emissions, EPA did not perform any actual testing to analyze the environmental impact of remanufactured engines and gliders compared to new Original Equipment Manufacturer ("OEM") vehicles. Instead, it relied on unsubstantiated assumptions about the number of older engines used in gliders and the emissions from engines used in gliders.

If left in place, the Phase 2 Rule would significantly curtail American manufacturing and effectively shut down the glider industry and the nearly 20,000 jobs it supports across the nation. For example, Fitzgerald, which is based out of Tennessee and Kentucky, is currently responsible for 1,600 direct and indirect jobs in those two states alone and several thousand more associated with suppliers across the country. Yet, if this regulation goes into full effect, by the end of the year, the company will be forced to cut production and its workforce by 90%. Harrison, based in Iowa, employs approximately 450 people, and its suppliers account for many more glider-related jobs. Indiana Phoenix, based in Indiana, directly employs over a 100 people in Avilla, Indiana. The Phase 2 Rule, if it takes effect, would put more job opportunities out of reach for economically challenged areas already struggling with unemployment. Additionally, it would force small businesses to buy more expensive new vehicles instead of growing their business and creating jobs.

[2] There are additional exceptions from the general requirement for engines from more recent model years or with relatively few miles of engine operation. *See* 40 C.F.R. §§ 1037.150(t)(2); 1037.635(c). These carve outs do not apply to the vast majority of the gliders assembled by companies like Fitzgerald and Harrison, which tend to use engines from earlier model years and that have been subjected to normal use.

Bases for Reconsideration

EPA should reconsider the application of the Phase 2 Rule to glider kits, glider vehicles, and rebuilt engines installed in gliders for three reasons: (1) Section 202(a) of the Clean Air Act does not authorize EPA to regulate gliders; (2) EPA's prior decision to regulate gliders was based on unsupported assumptions rather than data; and (3) reconsideration is warranted under Executive Order 13783.

1. Section 202(a) of the Clean Air Act Does Not Authorize EPA to Regulate Gliders

The Phase 2 Rule relied on EPA's authority under section 202(a) of the Clean Air Act to regulate emissions from "new motor vehicles" and "new motor vehicle engines." 42 U.S.C. § 7521(a)(1). Because glider vehicles are not "new motor vehicles" and glider engines are not "new motor vehicle engines," EPA lacked authority under this provision to apply the Phase 2 Rule to gliders.

A glider is not a "new motor vehicle" because the most significant parts of the vehicle—the engine, transmission, and typically the rear axle—are not new. A vehicle is a "new motor vehicle" within the meaning of the Clean Air Act only if "equitable or legal title" to the vehicle has "never been transferred to an ultimate purchaser." 42 U.S.C. § 7550(3). For gliders, the "legal or equitable" title to the main components of the vehicle had previously "been transferred to an ultimate purchaser"—the owner of the donor truck. Simply adding new parts to a used truck does not make it a "new motor vehicle." The Phase 2 Rule's consideration of this issue was arbitrary and capricious and contrary to law. The Rule indicated first that EPA's authority could not be challenged because EPA had implicitly found gliders to be new vehicles in its Phase 1 Rule, which granted an interim exemption for gliders. 81 Fed. Reg. at 73,513-14. EPA, however, had an obligation to determine in the Phase 2 Rule that it had authority to act. *See Louisiana Pub. Serv. Comm'n v. FCC*, 476 U.S. 355, 374 (1986) ("[A]n agency literally has no power to act . . . unless and until Congress confers power upon it."); *Arlington v. FCC*, 133 S. Ct. 1863, 1880 (2013) (same). The Phase 2 Rule also erroneously based its interpretation of the Clean Air Act on marketing materials from the Fitzgerald web site. 81 Fed. Reg. at 73,514. EPA's legal authority does not turn on how a glider is described in marketing materials. EPA should reconsider this issue and conclude that because the principal parts of a glider are used, a glider is not a "new motor vehicle."

Such a conclusion would be consistent with the treatment of this issue by the National Highway Traffic Safety Administration ("NHTSA"). NHTSA's regulations make clear that a truck is not considered to be "newly manufactured" if the "engine, transmission, and drive axle(s) (as a minimum) of [an] assembled vehicle are not new" and at least two of those three components come from the same donor vehicle. 49 C.F.R. § 571.7(e). Gliders do not fall within this definition. EPA failed adequately to explain its departure from NHTSA's approach.

Moreover, "glider kits" do not even fall within the Clean Air Act's definition of "motor vehicle." Under the Act, a "motor vehicle" must be "self-propelled." 42 U.S.C. § 7550(2). But a glider kit lacks an engine, transmission, and often a rear axle. A collection of parts lacking these key components obviously is not "self-propelled." The Phase 2 Rule relies on particular

provisions authorizing regulation of specific vehicle components. 81 Fed. Reg. at 73,514; *see* 42 U.S.C. § 7521(a)(5)(A) (fueling systems); *id.* § 7521(a)(6) (onboard vapor recovery systems). But there is no provision authorizing regulation of the parts that make up a glider kit. The fact that the Clean Air Act allows EPA to regulate certain specified vehicle components, but not the components in a glider kit, undermines the Phase 2 Rule's application to glider kits. Congress understood how to grant EPA authority to regulate vehicle components but declined to authorize regulation of glider kits. *See TRW, Inc. v. Andrews*, 534 U.S. 19, 28-29 (2001) (applying *expressio unius* canon of construction). Under the interpretation set forth in the Phase 2 Rule, there would be no limit on EPA's authority to regulate parts of vehicles.

The Phase 2 Rule also states that EPA has authority to regulate "incomplete vehicles" and "vehicle components" under Section 202(a). *See* 81 Fed. Reg. at 73,514. It first points to language from Section 202(a)(1) stating that EPA has authority "whether such [new motor] vehicles . . . are designed as complete systems or incorporate devices to prevent or control . . . pollution." 42 U.S.C. § 7521(a)(1). This portion of section 202(a)(1), however, merely provides that emissions standards are limited to the useful life of a vehicle or engine. *See id.* It does not purport to expand EPA's authority in the first sentence of that section. *See id.* ("The Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of *new motor vehicles* . . . ." (emphasis added)).[3]

Finally, the Phase 2 Rule erred in concluding that glider engines are "new motor vehicle engines" under the Act. A "new motor vehicle engine" is defined as either (1) "an engine in a new motor vehicle," or (2) a "motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." 42 U.S.C. § 7550(3). Because a glider is not a new motor vehicle, a glider engine is not "an engine in a new motor vehicle." *Id.* And because a glider engine has previously been owned, title in the engine has previously been "transferred to an ultimate purchaser." *Id.*

For all of these reasons, Petitioners respectfully suggest that EPA reconsider its authority to regulate gliders under Section 202(a) of the Clean Air Act.

2. EPA's Prior Decision To Regulate Gliders Was Based on Unsupported Assumptions Rather than Data

The Phase 2 Rule relied upon unsupported assumptions to arrive at the conclusion that immediate regulation of glider vehicles was warranted and necessary. First, the Phase 2 Rule assumed that *all* glider engines would be older engines from before 2002. *See* 81 Fed. Reg. at

[3] The Phase 2 Rule also indicated that EPA's authority to regulate "defeat devices" "support[ed] the actions EPA is taking [under section 202] with respect to . . . glider kits." 81 Fed. Reg. at 73,518. There is no basis for this contention. Under the Act, a defeat device is "any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is *to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine* in compliance with [Clean Air Act] regulations." 42 U.S.C. § 7522(a)(3)(B) (emphasis added). But the "principal effect" of a glider kit is not to "bypass, defeat, or render inoperative" some "device" or "element of design" in a vehicle. The Rule never explained what device or element of design it thought was being defeated.

73,943 ("The modeling also assumed that these gliders emit at the level equivalent to the engines meeting the MY 1998-2001 standards . . . ."); RTC 1960-1961. EPA indicated that it believed "*most* glider vehicles currently being produced use remanufactured engines of this vintage," *id.* (emphasis added), but it made no effort to quantify what percentage of glider engines in fact would fall within this category and instead assumed that *all* of them would. In fact, the model year of the engines used in glider vehicles varies depending on the donor vehicle or owner and includes engines from after 2002.

EPA also assumed that the nitrogen oxide ("NO_x") and particulate matter ("PM") emissions of glider vehicles using pre-2007 engines would be at least ten times higher than emissions from equivalent vehicles being produced with brand new engines. *See id.* at 73,942. But EPA relied on no actual data to support this conclusion; it simply relied on the pre-2007 standards. *Id.* A recent study by Tennessee Technological University ("Tennessee Tech") analyzing the NO_x, PM, and carbon monoxide ("CO") emissions from both remanufactured and OEM engines reached a contrary conclusion. *See* Exhibit 1 (Letter to the Hon. Diane Black from Philip B. Oldham, President, Tennessee Technological University, and Thomas Brewer, Associate Vice President, Center for Intelligent Mobility (June 15, 2017)). The results showed that remanufactured engines from model years between 2002 and 2007 performed roughly on par with OEM "certified" engines, and in some instances even out-performed the OEM engines. *See id.* at 1. Tennessee Tech's research also "showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage." *Id.* at 2. Tennessee Tech also estimated that glider vehicles would emit less than 12% of the total NO_x and PM emissions for all Class 8 heavy duty vehicles, *see id.*, not 33% as the Phase 2 Rule suggests, *see* 81 Fed. Reg. at 73,943. Tennessee Tech's findings constitute new information, developed since the Phase 2 Rule was promulgated, and provide a basis for EPA to reconsider the existing rule pursuant to Section 307 of the Clean Air Act. 42 U.S.C. § 7607(d)(7)(B); *see* S. Rep. No. 91-1196, at 41-42 (1970) ("[N]ew information . . . may dictate a revision or modification of any promulgated standard or regulation established under the [Clean Air] act."); *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654, 660 (D.C. Cir. 1975) (same).

EPA also did not account for its own low-sulfur diesel rule. Starting in 2006, EPA required that diesel fuel refiners produce diesel fuels with a 97% lower sulfur content. *See* 40 C.F.R. §§ 80.500, 80.520. This reduction of sulfur significantly reduced the amount of NO_x, PM, and other pollutants emitted from diesel engines, including gliders and other heavy-duty truck tractors. This reduction was not taken into account in the development of the Phase 2 Rule for gliders.

The Phase 2 Rule also erroneously assumed that the only explanation for the growth of the glider vehicle market was that glider assemblers sought to avoid the increasingly restrictive emission standards for engines in new OEM tractors. 81 Fed. Reg. at 73,943. The reality is that glider vehicles do not directly compete with new OEM tractors. For most individuals or companies that purchase gliders, the choice is not between a glider or a new tractor. The choice is between a glider and continuing to run their old tractor. Further, glider vehicle assemblers often take the lead on forward-thinking research and development that benefits the entire industry, including innovative research on fuel additives, emission devices, and tire and wheel combinations in small production runs. *See* Exhibit 1, at 2. Glider assemblers are currently

testing components, light weight drive systems, alternative fuel mixtures, autonomous drive systems, light weight body materials, and intelligent transportation systems. *Id.* In short, the glider assemblers are a complementary part of the medium- and heavy-duty truck industry, not direct competitors to OEMs.

Finally, the Phase 2 Rule failed to consider the significant environmental *benefits* that glider vehicles create. Glider vehicle GHG emissions are less than those of OEM vehicles due to gliders' greater fuel efficiency, and the carbon footprint of gliders is further reduced by the savings created by recycling materials. Gliders are 20% more fuel efficient than OEM vehicles. *See id.* Moreover, gliders reuse engines and other components, instead of casting new parts. Glider assemblers reuse approximately 4,000 pounds of cast steel in the remanufacturing process, including 3,000 pounds for the engine assembly alone. *Id.* Reusing these components avoids the environmental impact of casting steel, including the significant associated NO_x emissions. *See, e.g.*, National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing, 68 Fed. Reg. 27,646 (May 20, 2003); Envtl. Prot. Agency, *Alternative Control Techniques Document – NO_x Emissions From Iron and Steel Mills*, EPA-453/R-94-065 (Sept. 1994); *see also* Exhibit 1, at 2. Given their better fuel efficiency and reuse of cast steel, gliders have a lower carbon footprint than OEM vehicles, a fact not considered in the development of the Phase 2 Rule.

In light of the new information developed by Tennessee Tech and the unsupported assumptions that form the basis for the Phase 2 Rule as it applies to gliders, EPA should reconsider the rule.

3. Reconsideration Is Warranted under Executive Order 13783

The March 28, 2017 Executive Order, "Presidential Executive Order on Promoting Energy Independence and Economic Growth," further highlights why EPA should reconsider the Phase 2 Rule as it applies to gliders. Exec. Order No. 13,783 (Mar. 28, 2017). The Executive Order rescinds (among other things) the June 2013 report from the Executive Office of the President, titled "The President's Climate Action Plan," and instructs EPA and all other federal agencies to "identify existing agency actions related to or arising from" the now-rescinded plan and to "suspend, revise, or rescind, or publish for notice and comment proposed rules suspending, revising, or rescinding any such actions, as appropriate and consistent with law and with the policies set forth in section 1 of th[e] order." *Id.* §§ 3(b), (d). The Phase 2 Rule is a direct product of the Climate Action Plan. 81 Fed. Reg. at 73,480. And reconsideration of the application of the Phase 2 Rule to gliders is consistent with the Executive Order's stated purpose of avoiding environmental regulation that "constrain[s] economic growth" and "prevent[s] job creation" and ensuring that "environmental regulations comply with the law, are of greater benefit than cost, and are developed through transparent processes that employ the best available peer-reviewed science and economics." Exec. Order No. 13,783 §§ 1(a), (e). Because the Phase 2 Rule is related to the rescinded Climate Action Plan, and because the portion of the Rule that applies to gliders conflicts with the policies set forth in Section 1 of the Order, EPA should reconsider the rule. Based on that reconsideration, EPA should "suspend, revise, or rescind" the Rule as applied to gliders, including, as necessary, by promulgating new regulations. *See id.* § 3(d).

Conclusion

For the foregoing reasons, Petitioners respectfully request EPA to reconsider application of the Phase 2 Rule to gliders. Given the impending January 1, 2018 compliance date, which will effectively eliminate the industry, Petitioners request that EPA complete this reconsideration as soon as possible.

Respectfully,

Fitzgerald Glider Kits, LLC
Tommy C. Fitzgerald, President

Harrison Truck Centers, Inc.
Dustin Petersen, Shareholder

Indiana Phoenix, Inc.
Dane Keener, General Manager

EXHIBIT 1

Office of the President

TENNESSEE TECH

June 15, 2017

The Honorable Diane Black
1131 Longworth HOB
Washington, DC 20515

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Congressman Black:

From September 2016 – November 2016, the Tennessee Technological University Department of Civil and Environmental Engineering ("Tennessee Tech") conducted the first phase of its research on the environmental and economic impact of the Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 rule ("Phase 2 Rule") published October 25, 2016. The key areas of research were to (1) Compare Glider Kit compliance with the Phase 2 Rule; (2) Perform high level environmental footprint and economic study of OEM manufacturing vs. assembly of remanufactured components (Glider Kits); and (3) Evaluate industry optimization plans to address future environmental regulations including but not limited to production vehicles, component assembly, and facility compliance.

To carry out the environmental footprint component of the research, Tennessee Tech tested thirteen heavy-duty trucks on a common chassis dynamometer at a common site: eight trucks were remanufactured engines and five were OEM "certified" engines, all with low mileage (NOTE: These Base Line Setting Phase 1 results were completed by testing only one Glider Kit manufacturer's product and one OEM's product). Each vehicle was evaluated for fuel efficiency, carbon monoxide (CO), particulate matter (PM) emissions and nitrogen oxide (NO_x). The results of the emissions test were compared with the 2010 EPA emissions standards for HDVs. Our research showed that optimized and remanufactured 2002-2007 engines and OEM "certified" engines performed equally as well and in some instances out-performed the OEM engines. (see also Appendix A for more detailed test results).

Summary Chart of Phase 1 Test Results	
Emission Standard	**Result**
CO	All vehicles met the standard
PM	All vehicles met the standard
NO_x	None of the vehicles met the standard

Tennessee Tech / Box 5001 / Cookeville, TN 38505 / 931 372 3241 / F 931-372-6352 / www.tntech.edu/president

While none of the vehicles met the NO_x standard, a glider remanufactured engine achieved the best result of any engine tested (see Appendix A). Further, our research showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage. Contrary to the assertion in the Phase 2 Rule, it is our estimate that the glider kit HDVs would emit less than 12% of the total NO_x and PM emissions, not 50%, for all Class 8 HDVs. Should the Phase 2 glider cap be fully implemented on January 1, 2018, there is little doubt that consumers utilizing glider vehicles, due to economic considerations, will delay purchasing new equipment and consequently, slow the reduction of engine emissions nationwide. In this regard, the Phase 2 rule is counter-productive to its stated intent.

In addition to equal or lower emissions, glider kits have a smaller carbon footprint than OEM vehicles due to fuel efficiency and recycling of materials. Comparisons between 2016 glider kit vehicles and new EPA compliant vehicles for fuel efficiency reflect that glider kits are 20% more efficient on fuel consumption. Glider vehicles also reuse engines and other components in the remanufacturing process, resulting in the reuse of approximately 4,000 pounds of cast steel. The engine assembly alone accounts for approximately 3,000 pounds of recycled cast steel. Thus, the well-documented environmental impact of casting steel, including the significant NOx emissions, is avoided by reusing cast steel components in glider vehicles. Consequently, given the superior fuel efficiency and the reuse of cast steel, glider vehicles have a lower carbon footprint than OEMs. None of these facts were considered in the development of the Phase 2 rule.

From an economic standpoint, Tennessee Tech examined the impact of the Phase 2 Rule sales cap of 300 units for glider kits would have on the State of Tennessee. The 300 unit sales cap represents 9% of Fitzgerald's current sales. It is estimated that a 91% reduction in output by Fitzgerald would result in a direct loss of approximately 947 jobs and a loss of approximately $512 million of economic output in the State of Tennessee alone. This impact takes into account the direct and indirect economic impact, including expenditures on labor, operations and maintenance as well as changes in the supply chain throughout the state. Additionally, on a broader scale, the economic impact of the Phase 2 Rule could easily exceed $1 billion nationwide due to thousands of permanent job losses and supply chain interruption and reduction. The Phase 2 Rule failed to sufficiently evaluate and consider these impacts.

Finally, this phase of the research shows that trucking companies that utilize glider kit HDVs in their fleets are vigilant in maintenance and elect to optimize their fleets to maximum efficiency throughout the life span of the vehicle. Further, glider kit assemblers facilitate research and development for OEM's by conducting innovative research for fuel additives, emission devices, tire and wheel combinations in small production runs and are currently testing components, light weight drive systems, alternative fuel mixtures, autonomous drive systems, light weight body materials, and intelligent transportation systems. As a general statement, our observation is glider assemblers are in tune with industry needs and cutting edge innovation.

Tennessee Tech will continue to evaluate HDV engines during Phase II of the research in 2017. Such effort will be conducted in conjunction with the Oak Ridge National Lab - Fuel Engines & Emissions Research Center. The goals of the next phase include development of engineering and manufacturing solutions that exceed EPA emission standards, a focused research, development, and testing plan for NO_x emissions, and to continue testing to demonstrate continuous improvement of emissions from remanufactured heavy-duty engines.

Sincerely.

Philip B. Oldham
President

Thomas Brewer
Associate Vice President
Center for Intelligent Mobility

APPENDIX A: Testing Results from Tennessee Tech Phase 1 Heavy Duty Vehicle Study			
Engine	**Type**	**CO (g/HP * hr) (2010 standard = 15.5)**	**PM**
Detroit Diesel DD15	ReMan	0.290	BTD
Caterpillar CT13	ReMan	0.212	BTD
Detroit Diesel Series 60	ReMan	1.553	BTD
Detroit Diesel Series 60	ReMan	1.959	BTD
Detroit Diesel Series 60	ReMan	0.015	BTD
Detroit Diesel Series 60	ReMan	0.317	BTD
Detroit Diesel Series 60	ReMan	0.483	BTD
Detroit Diesel Series 60	ReMan	0.467	BTD
Detroit Diesel DD15	OEM	0.491	BTD
Detroit Diesel DD15	OEM	1.169	BTD
Detroit Diesel DD15	OEM	0.556	BTD
Detroit Diesel DD15	OEM	0.098	BTD
Detroit Diesel DD15	OEM	1.558	BTD

*BTD=below threshold detection point

** NO_x (g/HP * HP) (2010 standard = 0.2); All tested engines were higher than the standard and ranged from a low of 0.44 to a high of 6.45. The lowest tested NOx was a Fitzgerald – Reman Detroit Diesel DD 15 using proprietary Fitzgerald engine design and set up. That same engine also tested at the 0.290 Co rate.

E. SCOTT PRUITT
ADMINISTRATOR

August 17, 2017

Mr. Tommy C. Fitzgerald
President
Fitzgerald Glider Kits
1225 Livingston Highway
Birdstown, Tennessee 38549

Dear Mr. Fitzgerald:

Thank you for your letter of July 10, 2017, requesting that the U.S. Environmental Protection Agency reconsider the requirements for gliders under the final rule titled *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2* (81 FR 73478, October 25, 2016) (*Phase 2 Rule*). Your letter raises significant questions regarding the EPA's authority under the Clean Air Act to regulate gliders as well as the soundness of the EPA's technical analysis used to support the requirements.

More specifically, your letter states that the EPA lacks authority over glider *vehicles* because they are not "new" motor vehicles and glider *kits* because they do not fall within the Clean Air Act's definition of "motor vehicle." In addition, it also raises concerns that the EPA relied upon "unsupported assumptions rather than data" with regard to the emission impacts of glider vehicles.

In light of these issues, the EPA has decided to revisit the provisions in the *Phase 2 Rule* that relate to gliders. We intend to develop and issue a Federal Register notice of proposed rulemaking on this matter, consistent with the requirements of the Clean Air Act.

If you have any questions regarding this response, you may contact Bill Charmley in the Office of Transportation and Air Quality at (734) 214-4466.

Respectfully yours,

E. Scott Pruitt

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Interagency review comments showing significant concerns about EPA's lack of economic and health analyses (pp. 1, 20, 22)

Sutton, Tia

From: Whiteman, Chad S. EOP/OMB <Chad_S_Whiteman@omb.eop.gov>
Sent: Tuesday, October 24, 2017 10:16 PM
To: Hengst, Benjamin
Cc: Sutton, Tia; Burch, Julia
Subject: EO 12866 Interagency Comments on EPA Glider NPRM
Attachments: EO 12866 Review - EPA Repeal of Emission Requirements for Glider Vehicles - NPRM - 10_24_2017.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Ben,
Attached are EO 12866 interagency review comments on EPA's draft NPRM titled, "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits," RIN 2060–AT79.
Best Regards,
Chad

Chad Whiteman
Senior Policy Analyst, Office of Information and Regulatory Affairs
Office of Management and Budget | Executive Office of the President
cwhiteman@omb.eop.gov
(202) 395-4718

*** Draft, Deliberative, Do Not Cite, Quote, or Release During OMB Review. Interagency Working Comments on Draft Language under 12866 Interagency Review. Subject to Further Policy Review.***

6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

Commented [A1]: Commenters request EPA to provide additional discussion in the preamble concerning the following topics: small business impacts/SBREFA, standards for gliders upon repeal, benefit/cost analysis in various sections, comparing new vs used vehicle costs.

40 CFR Part 1037

[EPA–HQ–OAR–2014–0827; FRL–xxxx–xx–OAR]

[RIN 2060–AT79]

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (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).

DATES:

Comments: Comments on all aspects of this proposal must be received on or before [INSERT DATE 30 DAYS AFTER THE PUBLIC HEARING].

Public Hearing: EPA will hold a public hearing on the following date: [INSERT DATE 15 DAYS AFTER PUBLICATION]. The hearing will be held [redacted]. To attend the hearing, individuals will need to show appropriate ID to enter the building. The hearing will start at 10 a.m. local time and continue until 5 p.m. or until everyone has had a chance to speak. More details concerning the hearing can be found at https://www.epa.gov/regulations-emissions-vehicles-and-engines/petitions-reconsideration-phase-2-ghg-emissions-and-fuel.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2014-0827, at http://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www.epa.gov/dockets/commenting-epa-dockets.

Docket: All documents in the docket are listed on the www.regulations.gov web site. Although listed in the index, some information is not publicly available, e.g., confidential business information or other information whose disclosure is restricted by statute. Certain other material,

such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the following location:

Air and Radiation Docket and Information Center, EPA Docket Center, EPA/DC, EPA WJC West Building, 1301 Constitution Ave., N.W., Room 3334, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT:

SUPPLEMENTAL INFORMATION

Does this Action Apply to Me?

This action relates to a previously promulgated Final Rule that affects companies that manufacture, sell, or import into the United States glider vehicles. Proposed categories and entities that might be affected include the following:

Category	NAICS Code[a]	Examples of Potentially Affected Entities
Industry	336110	Motor Vehicle Manufacturers, Engine Manufacturers, Engine Parts Manufacturers, Truck Manufacturers, Automotive Parts and Accessories Dealers
	336111	
	336112	
	333618	
	336120	
	441310	

Note:
[a] North American Industry Classification System (NAICS).

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely covered by these rules. This table lists the types of entities that we are aware may be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your activities are regulated by this action, you should carefully examine the applicability criteria in the referenced regulations. You may direct questions regarding the applicability of this action to the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

I. Introduction

The basis for the proposed repeal of those provisions of the Final Rule entitled Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 (the Phase 2 rule)[1] that apply to glider vehicles, glider engines, and glider kits is EPA's proposed interpretation of CAA section 202(a)(1) and sections 216(2) and 216(3), which is discussed below. EPA is proposing to interpret those statutory provisions as not authorizing the Agency (1) to treat glider vehicles as "new motor vehicles," (2) to treat glider engines as "new

[1] 81 FR 73478 (Oct. 25, 2016).

motor vehicle engines," or (3) to treat glider kits as "incomplete" new motor vehicles. Under this proposed interpretation, EPA would thereby lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

This proposed interpretation is a departure from the position taken by EPA in the Phase 2 rule, in which the Agency interpreted the statutory definitions of "new motor vehicle" and "new motor vehicle engines" in CAA section 216(3) as including glider vehicles and glider engines, respectively. The proposed interpretation correspondingly departs from EPA's position in the Phase 2 rule that CAA section 202(a)(1) authorizes the Agency to treat glider kits as "incomplete" new motor vehicles.

It is settled law that EPA has inherent authority to reconsider, repeal, or revise past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation. This authority exists in part because EPA's interpretations of the statutes it administers "are not carved in stone." *Chevron U.S.A. Inc. v. NRDC, Inc.* 467 U.S. 837, 863 (1984). Rather, an agency, if it is to "engage in informed rulemaking, must consider varying interpretations and the wisdom of its policy on a continuing basis." *Id.* at 863-64. This is true when, as is the case here, review is undertaken "in response to … a change in administration." *National Cable & Telecommunications Ass'n v. Brand X Internet Services*, 545 U.S. 967, 981 (2005). As has been observed, a "change in administration brought about by the people casting their votes is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations," and so long as an agency "remains within the bounds established by

Commented [A2]: Suggest including some type of cost/benefit analysis to support this statement.

Congress," the agency "is entitled to assess administrative records and evaluate priorities in light of the philosophy of the administration." *Motor Vehicle Manufacturers Ass'n. v. State Farm Mutual Automobile Insurance Co.*, 463 U. S. 29, 59 (1983) (Rehnquist, J., concurring in part and dissenting in part).

After reconsidering the statutory language, EPA proposes to adopt a reading of the relevant provisions of the CAA under which the statutory terms "new motor vehicle" and "new motor vehicle engine" would not include glider vehicles and glider engines, respectively. Further, glider kits would not be treated as "incomplete" new motor vehicles. Under this proposed reading, EPA would lack authority under CAA section 202(a)(1) to impose requirements on glider vehicles, glider engines, and glider kits and therefore proposes to remove the relevant rule provisions.

II. Background

A. Factual Context

A glider vehicle (sometimes referred to simply as a "glider") is a truck that utilizes a used (and typically refurbished) powertrain (including the engine, the transmission, and usually the rear axle) but which has new body parts. When these new body parts (which generally include the tractor chassis with frame, front axle, brakes, and cab) are put together to form the "shell" of a truck, the assemblage of parts is referred to collectively as a "glider kit."[2] The final manufacturer of the glider vehicle, *i.e.*, the entity that takes the assembled glider kit and

[2] Because a glider kit lacks an engine, it is neither capable of self-propulsion nor does it emit any air pollutants.

combines it with the used powertrain salvaged from some other "donor" truck, is most often a different manufacturer than the original manufacturer of the glider kit. *See* 81 FR 73512-13.

Comments submitted to EPA during the Phase 2 rulemaking state that gliders are approximately 25% less expensive than new trucks,[3] which makes them popular with small businesses and owner-operators.[4] For those businesses and drivers who cannot afford to purchase a new truck, a glider provides an attractive alternative to the continuing use of an older vehicle. In contrast to the older vehicle, a glider requires less maintenance and thus yields less downtime. Having the same braking, lane drift devices, dynamic cruise control, and blind spot detection devices that are found on current model year heavy-duty trucks, the glider is also a safer vehicle to operate, compared to the older truck that it is replacing.

Commented [A3]: Was EPA able to confirm this with NHTSA?

B. Statutory and Regulatory Context

Section 202(a)(1) of the CAA directs that "EPA shall by regulation prescribe," in "accordance with the provisions" of section 202, "standards applicable to the emission of any air pollutant from any . . . new motor vehicles or new motor vehicle engines." 42 U.S.C. § 7521(a)(1). Section 216(2) defines "motor vehicle" to mean "any self-propelled vehicle designed for transporting persons or property on a street or highway." 42 U.S.C. § 7550(2). In turn, a "*new* motor vehicle" is defined in section 216(3) to mean a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." 42 U.S.C. § 7550(3) (emphasis added). Similarly, a "new motor vehicle engine" is defined as an "engine in a new motor

[3] See Response to Comments for Joint Rulemaking, EPA-420-R-16-901 (August 2016) at 1846.
[4] Doc. EPA-HQ-OAR-2014-0827-1964.

vehicle" or a "motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." *Id.*[5]

In issuing the Phase 2 rule, EPA found that it was "reasonable" to consider glider vehicles to be "new motor vehicles" under the definition in CAA section 216(3). *See* 81 FR 73514. Likewise, the Agency found that the previously owned engines utilized by glider vehicles are properly considered to be "new motor vehicle engines" within the statutory definition. Based on these interpretations, EPA determined that it had authority under CAA section 202(a) to subject glider vehicles and glider engines to the standards of the Phase 2 rule and to impose on them certain other requirements. As for glider kits, EPA found that if glider vehicles are new motor vehicles, then the Agency was authorized to regulate glider kits as "incomplete" new motor vehicles. *Id.*

C. Petition for Reconsideration

Following promulgation of the Phase 2 rule, EPA received from representatives of the glider industry a joint petition requesting that the Agency reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits.[6] In their petition, the representatives of the glider industry warned that the Phase 2 rule "would significantly curtail American manufacturing" and "effectively shut down the glider industry and the nearly 20,000 jobs it supports across the nation." Petition at 2. For example, the Fitzgerald company represented that

[5] Further, with "respect to vehicles or engines imported or offered for importation," CAA section 216(3) provides that "new motor vehicle" and "new motor vehicle engine" mean a "motor vehicle and engine . . . manufactured after the effective date of a regulation issued under section 7521 of this title which is applicable to such vehicle or engine (or which would be applicable to such vehicle or engine had it been manufactured for importation into the United States)." 42 U.S.C. § 7550(3).

[6] *See* Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017) (Petition). Available at https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

it was "currently responsible for 1,600 direct and indirect jobs" in the states of Tennessee and Kentucky alone, and "several thousand more associated with suppliers across the country." *Id.* at 2. Fitzgerald further represented that, with the Phase 2 rule in effect, by the end of 2017 the company would be "forced to cut production and its workforce by 90%." *Id.*

The petitioners made three principal arguments in support of their petition. First, they argued that CAA section 202(a)(1) does not authorize EPA to regulate glider kits, glider vehicles, or glider engines. Petition at 3-4. Second, the petitioners contended that in the Phase 2 rule EPA "relied upon unsupported assumptions to arrive at the conclusion that immediate regulation of glider vehicles was warranted and necessary." *Id.* at 4. Third, the petitioners asserted that reconsideration was warranted under Executive Order 13783. *Id.* at 6.

Regarding their second contention, the petitioners took particular issue with what they characterized as EPA's having "assumed that the nitrogen oxide ("NOx") and particulate matter ("PM") emissions of glider vehicles using pre-2007 engines" would be "at least ten times higher than emissions from equivalent vehicles being produced with brand new engines. Petition at 5, *citing* 81 FR at 73942. According to the petitioners, EPA had "relied on no actual data to support this conclusion," but had "simply relied on the pre-2007 standards." *Id.* In support, the petitioners included as an exhibit to their petition a letter from the President of the Tennessee Technological University ("Tennessee Tech"), which described a study recently conducted by Tennessee Tech. This study, according to the petitioners, had "analyz[ed] the NOx, PM, and carbon monoxide . . . emissions from both remanufactured and OEM engines," and "reached a contrary conclusion" regarding glider vehicle emissions. Petition at 5.

Petitioners maintained that the results of the study "showed that remanufactured engines from model years between 2002 and 2007 performed roughly on par with OEM 'certified' engines," and "in some instances even out-performed the OEM engines." *Id.* The petitioners further claimed that the Tennessee Tech research "'showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage.'" *Id., quoting* Tennessee Tech letter at 2. Based on the Tennessee Tech study, the petitioners asserted that "glider vehicles would emit less than 12% of the total NOx and PM emissions for all Class 8 heavy duty vehicles . . . not 33% as the Phase 2 Rule suggests." *Id., citing* 81 FR at 73943.

Further, the petitioners complained that the Phase 2 rule had "failed to consider the significant environmental *benefits* that glider vehicles create." Petition at 6 (emphasis in original). "Glider vehicle GHG emissions are less than those of OEM vehicles," the petitioners contended, "due to gliders' greater fuel efficiency," and the "carbon footprint of gliders is further reduced by the savings created by recycling materials." *Id.* Regarding this latter point, the petitioners represented that "[g]lider assemblers reuse approximately 4,000 pounds of cast steel in the remanufacturing process," including "3,000 pounds for the engine assembly alone." *Id.* The petitioners pointed out that "[r]eusing these components avoids the environmental impact of casting steel, including the significant associated NOx emissions." *Id.* This "fact," the petitioners argued, is something that EPA should have been considered but was "not considered in the development of the Phase 2 rule." *Id.*

Commented [A4]: It would be helpful if EPA could expand their discussion with some analysis of this topic.

EPA responded to the glider industry representatives' joint petition by separate letters on August 17, 2017, stating, among other things, that the petition "raises significant questions regarding the EPA's authority under the Clean Air Act to regulate gliders."[7] EPA further indicated that it had "decided to revisit the provisions in the *Phase 2 Rule* that relate to gliders," and that the Agency "intends to develop and issue a Federal Register notice of proposed rulemaking on this matter, consistent with the requirements of the Clean Air Act."

III. Basis for the Proposed Repeal

A. Statutory Analysis

EPA is proposing to conclude that the statutory interpretations on which the Phase 2 rule predicated its regulation of glider kits, glider vehicles, and glider engines were incorrect. EPA is proposing to interpret the relevant language of the CAA as excluding glider vehicles from the statutory term "new motor vehicles" and glider engines from the statutory term "new motor vehicle engines," as both terms are defined in section 216(3). Consistent with this interpretation of the scope of "new motor vehicle," EPA is further proposing that it has no authority to treat glider kits as "incomplete" new motor vehicles under CAA section 202(a)(1). Based on these proposed interpretations, EPA is proposing to find that it has no authority under CAA section 202(a)(1) to set standards for, or otherwise to regulate or to impose requirements on, glider vehicles, glider engines, and glider kits.

[7] *See, e.g.*, Letter from E. Scott Pruitt, EPA Administrator, to Tommy C. Fitzgerald, President, Fitzgerald Glider Kits (Aug. 17, 2017). Available at https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-tma-ltr-2017-08-17.pdf.

Under EPA's proposed interpretation, the statute is clear that EPA has no authority to regulate glider kits under CAA section 202(a)(1). If glider vehicles are not "new motor vehicles," which is the interpretation of section 216(3) that EPA is proposing here, then the Agency entirely lacks authority to regulate glider kits as "incomplete" new motor vehicles. Furthermore, given that a glider kit lacks a powertrain, a glider kit does not even meet the definition of "motor vehicle," which, in relevant part, is defined to mean "any *self-propelled* vehicle." 42 U.S.C § 7550(2) (emphasis added). EPA is further proposing therefore that the Phase 2 rule was incorrect when it interpreted CAA section 202(a)(1) as giving the Agency authority to regulate glider kits as "incomplete" motor vehicles *See* 81 FR at 73514.

CAA section 202(a)(1) provides as follows:

> (1) The Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of *new motor vehicles* or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. Such standards shall be applicable to *such vehicles* and engines for their useful life (as determined under subsection (d) of this section, relating to useful life of vehicles for purposes of certification), whether *such vehicles* and engines *are designed as complete systems* or incorporate devices to prevent or control such pollution.

42 U.S.C. § 7521(a)(1) (emphases added). At issue here is the second sentence of paragraph (a)(1), including, specifically, the words: "[s]uch standards shall be applicable to such vehicles . . . whether such vehicles . . . are designed as complete systems." 42 U.S.C. § 7521(a)(1). In the Phase 2 rule, EPA took the position that the words "whether such vehicles . . . are designed as complete systems" can be interpreted as authorizing the Agency to regulate glider kits as

"incomplete vehicles." *See* 81 FR at 73515 ("[I]t is evident that . . . glider kits should be treated as vehicles, albeit incomplete ones."). The Agency had reasoned that a glider kit "is not a few assembled components; rather, it is an assembled truck with a few components missing." *Id.* Of course, among those "few" missing components is the powertrain, which enables self-propulsion and which is responsible for the emission of air pollutants.

In any event, the phrase "such vehicles" from the second sentence of clause (a)(1) is a reference back to the first sentence of clause (a)(1), which states that the Administrator "shall by regulation prescribe (and from time to time revise) . . . standards applicable to the emission of any air pollutant from any class or classes of *new motor vehicles*." 42 U.S.C. § 7521(a)(1) (emphasis added). Because an engine-less glider kit, incapable of self-propulsion, does not explicitly fit within the definition of a "motor vehicle," the fact that the second sentence of clause (a)(1) makes reference to "whether *such* vehicles" [*i.e.*, "new motor vehicles"] . . . are designed as complete systems" cannot support the claim that EPA is authorized to regulate glider kits as "incomplete" motor vehicles. The assertion that CAA section 202(a)(1) authorizes the regulation of glider kits as "incomplete" vehicles is based solely on the presupposition that glider kits *are* "such vehicles" – *i.e.*, "new motor vehicles." But a glider kit does not meet the definition of "motor vehicle," much less "new motor vehicle." Accordingly, EPA is here proposing to determine that the Phase 2 rule wrongly construed this language from CAA section 202(a)(1) when it interpreted that language as giving EPA authority to regulate them as "incomplete" vehicles. EPA solicits comment on this interpretation.

With respect to glider vehicles – *i.e.*, a glider kit in which a previously owned powertrain has been installed – EPA is proposing to interpret the definition of "new motor vehicle" in CAA section 216(3) as not including glider vehicles. The principal components of a glider vehicle (*i.e.*, the powertrain elements, including the engine and the transmission) are components that have been previously owned and, typically, rebuilt. Therefore, the "equitable or legal title" to the most significant parts of the glider vehicle – and the components that actually produce air pollutant emissions – have previously been "transferred to an ultimate purchaser," *i.e.*, the original owner of the donor truck. For this reason, EPA is proposing to find that glider vehicles should not be considered to be "new," and that the statutory language in CAA § 216(3) does not include glider vehicles.[8]

Commented [A5]: Commenter suggests the footnote be removed as this footnote could create unnecessary confusion regarding the different ways that NHTSA and EPA treat gliders.

In taking the contrary position, the Phase 2 rule is effectively claiming that the act of installing a *previously owned* powertrain into a glider kit – *i.e.*, something that is not itself a "motor vehicle" – results in the creation of a *new* "motor vehicle." This counterintuitive result, at a minimum, suggests that, in defining "new motor vehicle" generally to mean a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser," Congress did not intend that a glider vehicle, comprised of a new outer shell conjoined to a previously owned powertrain, should be treated as a "new" vehicle, due solely to fact that a glider vehicle may be

[8]Underscoring the fact that this is the natural understanding of the terms that Congress used to define "new motor vehicle" is that, for their part, the National Highway Traffic Safety Administration's regulations establish that a truck is not considered to be "newly manufactured" if the "engine, transmission, and drive axle(s) (as a minimum) of [an] assembled vehicle are not new" and at least two of those three components come from the same donor vehicle. *See* 49 C.F.R. § 571.7(e). And while it may be the case that some glider manufacturers have marketed their products as being like "new trucks," *see* 81 FR at 73514, the relevant consideration is the text of the CAA itself, which precludes a truck from being deemed "new" where title has already been transferred to an "ultimate purchaser."

assigned a new title following the assembly of components, some of which are new and some of which were previously owned.

Where the "traditional tools of statutory construction" allows one to "ascertain[] that Congress had an intention on the precise question at issue," that "intention is the law and must be given effect." *See Chevron*, 467 U.S. at 843 n.9. At the same time, where "Congress has not directly addressed the precise question at issue," and the "statute is silent or ambiguous with respect to the specific issue," it is left to the agency charged with implementing the statute to provide an "answer based on a permissible construction of the statute." *Id.* at 843. In this case, EPA proposes to interpret the relevant statutory language as authorizing the Agency to exclude glider vehicles from being treated as "new motor vehicles."

Regarding glider engines, EPA proposes that, since a glider vehicle does not meet the statutory definition of a "new motor vehicle," it follows that a glider engine is not a "new motor vehicle engine" within the meaning of CAA section 216(3). Under that provision, a motor vehicle engine is considered "new" in either of two circumstances: (1) the engine is "in a new motor vehicle," or (2) the "equitable or legal title" to the engine has "never been transferred to the ultimate purchaser." The second of these circumstances can never apply to a glider engine, which is invariably an engine that has been previously owned.

As to the first circumstance, a glider engine is installed in a glider kit, which in itself is not a "motor vehicle." A glider kit becomes a "motor vehicle" only after an engine (and the balance of the powertrain) has been installed. But while adding a previously owned engine to a glider kit

may result in the creation of a "motor vehicle," the assert that the previously owned engine thereby becomes a "*new* motor vehicle engine" within the meaning of CAA section 216(3), due to the engine's now being in a "new motor vehicle," reflects circular thinking. It *presupposes* that the installation of a (previously owned) engine in a glider kit creates not just a "motor vehicle" but a "new motor vehicle." This is not the case. EPA is proposing to interpret the relevant statutory language in a manner that rejects the Agency's prior reliance on the view that (1) installing a previously owned engine in a glider kit transforms the glider kit into a "new motor vehicle," and (2) that, thereafter, the subsequent presence of that previously owned engine in the supposed "new motor vehicle" causes that engine to become a "new motor vehicle engine" within the meaning of CAA section 216(3).

EPA believes that its proposed interpretation is the correct reading of the relevant statutory language, and that its proposed determination, based on this interpretation, that regulation of glider vehicles, glider engines, and glider kits is not authorized by CAA section 202(a)(1) is reasonable. Comments submitted in the Phase 2 rulemaking docket leads the Agency to understand that a glider vehicle is a suitable and affordable option for those small businesses and independent operators who cannot afford to purchase a truly new vehicle, but who otherwise wish to replace an older vehicle with a vehicle that is equipped with up-to-date safety features and, as well, may produce fewer emissions than the older vehicle. In other words, EPA considers that at issue here is not so much whether the availability of glider vehicles will result in fewer new trucks being purchased but, rather, whether limiting the availability of glider vehicles will simply result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA seeks comment on this understanding of the situation.

Commented [A6]: Recommend finding a more straightforward way of asking for comment on this issue. Simply put, the question is how much discretion truck owners have over when they replace their vehicles? The answer would need to consider useful life of the vehicle, accident rates in the U.S., etc. If EPA has already considered this question and analyzed relevant data, the comments should be on the validity of EPA's prior analyses.

EPA welcomes comments on its proposed interpretation. The Agency also seeks comment on the matter of the anticipated purchasing behavior on the part of the smaller trucking operations and independent drivers if the regulatory provisions at issue were to repealed. Further, EPA seeks comment on the relative expected emissions impacts if the regulatory requirements at issue here were to be repealed or were to be left in place.

EPA also solicits comment on whether, in lieu of regulation under CAA section 202(a)(1), it might be reasonable for EPA to establish standards for glider kits, glider vehicles, and glider engines pursuant to authority the Agency may have under other provisions of the CAA, such as CAA section 202(a)(3)(D), which authorizes EPA to "prescribe requirements to control rebuilding practices" with respect to heavy duty engines. *See* 42 U.S.C. § 7521(a)(3(D).

Commented [A7]: Please provide background information on what is the scope of EPA's authority here.

B. Conclusion

EPA has a fundamental obligation to ensure that the regulatory actions it takes are authorized by Congress, and that the standards and requirements that it would impose on the regulatory community have a sound and reasonable basis in law. *See Louisiana Pub. Serv. Comm'n v. FCC*, 476 U.S. 355, 374 (1986) ("[A]n agency literally has no power to act . . . unless and until Congress confers power upon it."). EPA is now proposing to find that the correct reading of the relevant provisions of the CAA, including CAA section 202(a)(1), 216(2), and 216(3) is that glider vehicles should not be regulated as "new motor vehicles," that glider engines should not be regulated as "new motor vehicle engines," and that glider kits should not be regulated as "incomplete" new motor vehicles. Based on this proposed interpretation, EPA is proposing to

repeal those provisions of the Phase 2 rule applicable to glider vehicles, glider engines, and glider kits.

IV. Public Participation

We request comment by [INSERT DATE 30 DAYS AFTER THE PUBLIC HEARING] on all aspects of this proposal. This section describes how you can participate in this process.

Materials related to the Heavy-Duty Phase 2 rulemaking are available in the public docket noted above and at https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.

1. How Do I Prepare and Submit Information?

Direct your submittals to Docket ID No. EPA–HQ–OAR–2014-0827. EPA's policy is that all submittals received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the submittal includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

Do not submit information to the docket that you consider to be CBI or otherwise protected through www.regulations.gov. The www.regulations.gov web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your submittal. If you submit an electronic submittal, EPA recommends that you include your name and other contact information in the body of your submittal and with any disk or CD–ROM you submit. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm.

EPA will hold a public hearing on the date stated in the DATES Section. The hearing will be held at _____. To attend the hearing, individuals will need to show appropriate ID to enter the building. The hearing will start at 10 a.m. local time and continue until 5 p.m. or until everyone has had a chance to speak. More details concerning the hearing can be found at https://www.epa.gov/regulations-emissions-vehicles-and-engines/petitions-reconsideration-phase-2-ghg-emissions-and-fuel.

2. Submitting CBI

Do not submit this information to EPA through www.regulations.gov or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI). In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

3. Tips for Preparing Your Comments

When submitting comments, remember to:

- Identify the action by docket number and other identifying information (subject heading, Federal Register date and page number).
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified in the DATES section above.

V. Statutory and Executive Order Reviews

(1) Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is an economically significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

Commented [A8]: Will EPA explain how they arrived at this suggested designation under EO 12866? We would request the agency to include additional benefit/cost analysis in the proposed rule to support the suggested significance determination.

(2) Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This proposed rule~~action~~ is expected to be an Executive Order 13771 deregulatory action. This proposed rule is expected to provide meaningful burden reduction by eliminating regulatory requirements for glider manufacturers.

Commented [A9]: Request the agency to include more analysis in the preamble to describe/estimate any burden reduction.

(3) Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA because it does not contain any information collection activities. It would only eliminate regulatory requirements for glider manufacturers.

Commented [A10]: EPA should revise this section to reference the OMB control number associated with the Heavy-Duty GHG rule collection as well as the estimated burden reduction from this regulatory action. As EPA would be changing the number of affected respondents by eliminating gliders, the collection would need to be submitted as a revision for OMB review.

(4) Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. Small glider manufacturers would be allowed to produce glider vehicles without meeting new motor vehicle emission standards. We have therefore concluded that this action will have no adverse regulatory impact for any directly regulated small entities.

(5) Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments.

(6) Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

(7) Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This proposed rule will be implemented at the Federal level and affects glider manufacturers. Thus, Executive Order 13175 does not apply to this action.

(8) Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Commented [A11]: Flagged for further discussion.

This action is subject to Executive Order 13045 because it is an economically significant regulatory action as defined by Executive Order 12866. The Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits was anticipated to lower ambient concentrations of $PM_{2.5}$ and some of the benefits of reducing these pollutants may have accrued to children. Our evaluation of the environmental health or safety effects of these risks on children is presented in Section XIV.H. of the HD Phase 2 Rule.[9] Some of the benefits for children's health as described in that analysis would be lost as a result of this action.

In general, current expectations about future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking. Furthermore, the proposed action does not affect the level of public health and environmental protection already being provided by existing NAAQS and other mechanisms in the CAA. This proposed action does not affect applicable local, state, or federal permitting or air quality management programs that will continue to address areas with degraded air quality and maintain the air quality in areas meeting current standards. Areas that need to reduce criteria air pollution to meet the NAAQS will still need to rely on control strategies to reduce emissions. To the extent that states use other mechanisms in order to comply with the NAAQS, and still achieve the criteria pollution reductions that would have occurred under the CPP, this proposed rescission will not have a disproportionate adverse effect on children's health.

[9] 81 FR 73478 (October 25, 2016).

(9) Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

(10) National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

(11) Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations, and Low-Income Populations

The EPA believes that this action may have disproportionately high and adverse effects on some minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994. EPA's evaluation of human health and environmental effects on minority, low-income or indigenous populations for the HD Phase 2 Rule is presented in preamble Section XIV.K.[10] We have not evaluated the specific impacts on minority, low-income or indigenous populations of the emission increases that would occur as a result of the proposed action to rescind emissions standards for heavy-duty glider vehicles and engines.

We also have not considered how cost savings to the trucking industry are passed on to consumers. To the extent trucking becomes cheaper and these costs savings translate into lower cost consumer goods, the purchasing power of low income and minority populations increases, Also expected, as a result of the Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, were shifts in regional workforces and involuntary unemployment impacts, particularly in the Glider Vehicle and Engine sector. While employment effects are not

[10] 81 FR 73478 (October 25, 2016).

experienced uniformly across the population and may be offset by new opportunities in different sectors, localized impacts could have adversely affected individuals and their communities. Workers losing jobs in regions or occupations with weak labor markets would have been most vulnerable. With limited re-employment opportunities, or if new employment offered lower earnings, then unemployed workers could face extended periods without work, or permanently reduced future earnings. In addition, past research has suggested that involuntary job loss may increase risks to health, of substance abuse, and even of mortality. These adverse impacts may be avoided with the proposed repeal of the Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits Consistent with the proposed determination that EPA lacks statutory authority to establish requirements for glider vehicles and glider engines, the agency also believes it does not have discretionary authority to address any potential associated environmental justice effects.

List of Subjects in 40 CFR Part 1037

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Incorporation by reference, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements, Warranties.

Dated: _____.

_____

E. Scott Pruitt,
Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as set forth below.

PART 1037—CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

1. The authority for part 1037 continues to read as follows:

Authority: 42 U.S.C. 7401—7671q.

Subpart B – [Amended]

2. Section 1037.150 is amended by revising paragraph (t) to read as follows:

§1037.150 Interim provisions.

* * * * *

(t) [Reserved]

* * * * *

Subpart G – [Amended]

§1037.635 [Removed]

3. Remove §1037.635.

Subpart I – [Amended]

4. Section 1037.801 is amended by removing the definitions "glider kit" and "glider vehicle" and revising the definitions of "manufacturer" and "new motor vehicle" to read as follows:

§ 1037.801 Definitions.

* * * * *

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures or assembles a vehicle (including a trailer or another incomplete vehicle) for sale in the United States or otherwise introduces a new motor vehicle into commerce in the United States. This includes importers who import vehicles for resale.

* * * * *

New motor vehicle has the meaning given in the Act. It generally means a motor vehicle meeting the criteria of either paragraph (1) or (2) of this definition. New motor vehicles may be complete or incomplete.

(1) A motor vehicle for which the ultimate purchaser has never received the equitable or legal title is a new motor vehicle. This kind of vehicle might commonly be thought of as "brand new" although a new motor vehicle may include previously used parts. Under this definition, the vehicle is new from the time it is produced until the ultimate purchaser receives the title or places it into service, whichever comes first.

(2) An imported heavy-duty motor vehicle originally produced after the 1969 model year is a new motor vehicle.

* * * * *

From: Charmley, William [mailto:charmley.william@epa.gov]
Sent: Tuesday, October 31, 2017 10:38 AM
To: Brewer, Tom <TBrewer@tntech.edu>; Oldham, Philip <poldham@tntech.edu>
Subject: Request for technical follow-up on Tennessee Tech emissions testing program of highway heavy-duty glider vehicle emissions

October 31, 2017

To: President Philip B. Oldham, President
Tennessee Technological University

Thomas Brewer, Associate Vice President
Center for Intelligent Mobility
Tennessee Technological University

Dear President Oldham and Associate Vice President Brewer:

My staff and I are interested in learning more about the emissions testing program of highway heavy-duty glider vehicles that Tennessee Tech has performed. We understand that the University undertook a testing program to evaluate the emissions performance of glider vehicles based on a June 15, 2017 Tennessee Tech letter that was included in a petition from several glider vehicle assemblers to the Environmental Protection Agency (EPA).

In response to that petition, this past August, EPA Administrator Pruitt announced that EPA is revisiting EPA's regulatory treatment of highway heavy-duty glider vehicles (a copy of the Administrator's letter on this topic is available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/petitions-reconsideration-phase-2-ghg-emissions-and-fuel). Based on the Administrator's decision to revisit the existing EPA regulations that apply to glider vehicles, we are looking for additional information on the emissions performance of glider vehicles. In addition, this information may be useful for efforts to improve the forecasting accuracy of EPA's emissions modeling (information on the official EPA mobile emissions model is available at: https://www.epa.gov/moves). As such, we would greatly appreciate an opportunity to learn more about the emissions testing program conducted by Tennessee Tech University.

I would like to arrange a conference call between the principal investigator(s) of the Tennessee Tech glider vehicle test program and my staff to gather additional information on the program your University has performed. Can you please let me know if such an initial call could be arranged, and who I could contact at Tennessee Tech to follow up on this topic?

Sincerely,

Bill Charmley

Director
Assessment and Standards Division

Email conveying final EPA draft of glider proposal to OMB, with last- minute changes

Sutton, Tia

From:	Sutton, Tia
Sent:	Wednesday, November 08, 2017 2:02 PM
To:	'Whiteman, Chad S. EOP/OMB'
Cc:	Owens, Nicole; Hengst, Benjamin
Subject:	EO 12866 final passback of EPA Glider NPRM
Attachments:	EO12866_Repeal of Emission Requirements for Gliders 2060-AT79 NPRM FRN_2....docx; EO12866_Repeal of Emission Requirements for Gliders 2060-AT79 NPRM FRN_2....docx
Follow Up Flag:	Follow up
Flag Status:	Flagged

Chad,
Here is the final passback with the changes as discussed.

Thank you,
Tia

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6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 1037 and 1068

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[EPA–HQ–OAR–2014–0827; FRL–9970-61–OAR]

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RIN 2060–AT79

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Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (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).

DATES:

Comments: Comments on all aspects of this proposal must be received on or before January 5, 2018.

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Public Hearing: EPA will hold a public hearing on Monday, December 4, 2017. The hearing will be held at EPA's Washington, DC campus located at 1201 Constitution Avenue, NW,

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Washington, DC. The hearing will start at 10:00 a.m. local time and continue until everyone has had a chance to speak. More details concerning the hearing can be found at https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.

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ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2014-0827, at http://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www.epa.gov/dockets/commenting-epa-dockets.

Docket: All documents in the docket are listed on the www.regulations.gov web site. Although listed in the index, some information is not publicly available, e.g., confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in

hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy at the following location:

Air and Radiation Docket and Information Center, EPA Docket Center, EPA/DC, EPA WJC West Building, 1301 Constitution Ave., N.W., Room 3334, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: Julia MacAllister, Office of Transportation and Air Quality, Assessment and Standards Division, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: 734-214-4131; email address: hearing_registration-asd@epa.gov.

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SUPPLEMENTARY INFORMATION:

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Does this Action Apply to Me?

This action relates to a previously promulgated final rule that affects companies that manufacture, sell, or import into the United States glider vehicles. Proposed categories and entities that might be affected include the following:

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Category	NAICS Code[a]	Examples of Potentially Affected Entities
Industry	336110	Motor Vehicle Manufacturers, Engine Manufacturers, Engine Parts Manufacturers, Truck Manufacturers, Automotive Parts and Accessories Dealers
	336111	
	336112	
	333618	
	336120	
	441310	

Note:
[a] North American Industry Classification System (NAICS).

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely covered by these rules. This table lists the types of entities that we are aware may be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your activities are regulated by this action, you should carefully examine the applicability criteria in the referenced regulations. You may direct questions regarding the applicability of this action to the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

I. Introduction

The basis for the proposed repeal of those provisions of the final rule entitled Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 (the Phase 2 rule)[1] that apply to glider vehicles, glider engines, and glider kits is EPA's proposed interpretation of CAA section 202(a)(1) and sections 216(2) and 216(3), which is discussed below. Under this proposed interpretation, 1) glider vehicles would not be treated as "new motor vehicles," 2) glider engines would not be treated as "new motor vehicle engines,"

[1] 81 FR 73478 (October 25, 2016)

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and 3) glider kits would not be treated as "incomplete" new motor vehicles. Based on this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

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This proposed interpretation is a departure from the position taken by EPA in the Phase 2 rule. There, EPA interpreted the statutory definitions of "new motor vehicle" and "new motor vehicle engines" in CAA section 216(3) as including glider vehicles and glider engines, respectively. The proposed interpretation also departs from EPA's position in the Phase 2 rule that CAA section 202(a)(1) authorizes the Agency to treat glider kits as "incomplete" new motor vehicles.

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It is settled law that EPA has inherent authority to reconsider, revise, or repeal past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation. This authority exists in part because EPA's interpretations of the statutes it administers "are not carved in stone." *Chevron U.S.A. Inc. v. NRDC, Inc.* 467 U.S. 837, 863 (1984). If an agency is to "engage in informed rulemaking," it "must consider varying interpretations and the wisdom of its policy on a continuing basis." *Id.* at 863-64. This is true when, as is the case here, review is undertaken "in response to … a change in administration." *National Cable & Telecommunications Ass'n v. Brand X Internet Services*, 545 U.S. 967, 981 (2005). A "change in administration brought about by the people casting their votes is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations," and so long as an agency "remains within the bounds established by Congress," the agency "is entitled to assess administrative records and evaluate priorities in light of the philosophy of the

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administration." *Motor Vehicle Manufacturers Ass'n. v. State Farm Mutual Automobile Insurance Co.*, 463 U. S. 29, 59 (1983) (Rehnquist, J., concurring in part and dissenting in part).

After reconsidering the statutory language, EPA proposes to adopt a reading of the relevant provisions of the CAA under which the Agency would lack authority under CAA section 202(a)(1) to impose requirements on glider vehicles, glider engines, and glider kits and therefore proposes to remove the relevant rule provisions. At the same time, under CAA section 202(a)(3)(D), EPA is authorized to "prescribe requirements to control" the "practice of rebuilding heavy-duty engines," including "standards applicable to emissions from any rebuilt heavy-duty engines." 42 U.S.C. § 7521(a)(3)(D).[2] If the interpretation being proposed here were to be finalized, EPA's authority to address heavy-duty engine rebuilding practices under CAA section 202(a)(3)(D) would not be affected.

Deleted: statutory terms "new motor vehicle" and "new motor vehicle engine" would not include glider vehicles and glider engines, respectively. Further, glider kits would not be treated as "incomplete" new motor vehicles. Under this proposed reading, EPA

II. Background

A. Factual Context

A glider vehicle (sometimes referred to simply as a "glider") is a truck that utilizes a previously owned powertrain (including the engine, the transmission, and usually the rear axle) but which has new body parts. When these new body parts (which generally include the tractor chassis with frame, front axle, brakes, and cab) are put together to form the "shell" of a truck, the assemblage of parts is referred to collectively as a "glider kit." The final manufacturer of the glider vehicle, *i.e.*, the entity that takes the assembled glider kit and combines it with the used

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[2] EPA has adopted regulations that address engine rebuilding practices. *See, e.g.*, 40 CFR 1068.120. EPA is not proposing at this action to adopt additional regulatory requirements pursuant to CAA section 202(a)(3)(D) that would apply to rebuilt engines installed in glider vehicles.

powertrain salvaged from a "donor" truck, is typically a different manufacturer than the original manufacturer of the glider kit. *See* 81 FR 73512-13 (October 25, 2016).

B. Statutory and Regulatory Context

Section 202(a)(1) of the CAA directs that EPA "shall by regulation prescribe," in "accordance with the provisions" of section 202, "standards applicable to the emission of any air pollutant from any . . . new motor vehicles or new motor vehicle engines." 42 U.S.C. § 7521(a)(1). CAA section 216(2) defines "motor vehicle" to mean "any self-propelled vehicle designed for transporting persons or property on a street or highway." 42 U.S.C. § 7550(2). A "new motor vehicle" is defined in CAA section 216(3) to mean, as is relevant here, a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." 42 U.S.C. § 7550(3) (emphasis added). A "new motor vehicle engine" is similarly defined as an "engine in a new motor vehicle" or a "motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." *Id.*[6]

Comments submitted to EPA during the Phase 2 rulemaking stated that gliders are approximately 25% less expensive than new trucks,[7] which makes them popular with small businesses and owner-operators.[8] In contrast to an older vehicle, a glider requires less maintenance and yields less downtime.[9] A glider has the same braking, lane drift devices, dynamic cruise control, and

[6] The definitions of both "new motor vehicle" and "new motor vehicle engine" are contained in the same paragraph (3), reflecting the fact that "[w]henever the statute refers to 'new motor vehicle' the phrase is followed by 'or new motor vehicle engine.'" *See Motor and Equipment Manufacturers Ass'n v. EPA*, 627 F.2d 1095, 1102 n.5 (D.C. Cir. 1979). As Title II currently reads, the term "new motor vehicle" appears some 32 times, and in all but two instances, the term is accompanied by "new motor vehicle engine," indicating that, at the inception of Title II, Congress understood that the regulation of engines was essential to control emissions from "motor vehicles."

[7] Response to Comments for Joint Rulemaking, EPA-420-R-16-901 (August 2016) at 1846.

[8] EPA-HQ-OAR-2014-0827-1964.

[9] EPA-HQ-OAR-2014-0827-1005.

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Comments submitted to EPA during the Phase 2 rulemaking state that gliders are approximately 25% less expensive than new trucks,[4] which makes them popular with small businesses and owner-operators.[5] For those businesses and drivers who cannot afford to purchase a new truck, a glider provides an attractive alternative to the continuing use an older vehicle. In contrast to the older vehicle, a glider requires less maintenance and thus yields less downtime. Having the same braking, lane drift devices, dynamic cruise control, and blind spot detection devices that are found on current model year heavy-duty trucks, the glider is also a safer vehicle to operate, compared to the older truck that it is replacing.¶

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blind spot detection devices that are found on current model year heavy-duty trucks, making it a safer vehicle to operate, compared to the older truck that it is replacing.[10]

Some commenters questioned EPA's authority to regulate glider vehicles as "new motor vehicles," to treat glider engines as "new motor vehicle engines," or to impose requirements on glider kits. Commenters also pointed out what they described as the overall environmental benefits of gliders. For instance, one commenter stated that "rebuilding an engine and transmission uses 85% less energy than manufacturing them new."[11] Another commenter noted that the use of glider vehicles "improves utilization and reduces the number of trucks required to haul the same tonnage of freight."[12] This same commenter further asserted that glider vehicles utilizing "newly rebuilt engines" produce less "particulate, NOx, and GHG emissions . . . compared to [a] worn oil burning engine which is beyond its useful life."[13]

In the Phase 2 rule, EPA found that it was "reasonable" to consider glider vehicles to be "new motor vehicles" under the definition in CAA section 216(3). *See* 81 FR 73514 (October 25, 2016). Likewise, EPA found that the previously owned engines utilized by glider vehicles should be considered to be "new motor vehicle engines" within the statutory definition. Based on these interpretations, EPA determined that it had authority under CAA section 202(a) to subject glider vehicles and glider engines to the requirements of the Phase 2 rule. As for glider kits, EPA found that if glider vehicles are new motor vehicles, then the Agency was authorized to regulate glider kits as "incomplete" new motor vehicles. *Id.*

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[11] EPA-HQ-OAR-2014-0827-1964.
[12] EPA-HQ-OAR-2014-0827-1005.
[13] *Id.*

C. Petition for Reconsideration

Following promulgation of the Phase 2 rule, EPA received from representatives of the glider industry a joint petition requesting that the Agency reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits.[14] The petitioners made three principal arguments in support of their petition. First, they argued that EPA is not authorized by CAA section 202(a)(1) to regulate glider kits, glider vehicles, or glider engines. Petition at 3–4. Second, the petitioners contended that in the Phase 2 rule EPA "relied upon unsupported assumptions to arrive at the conclusion that immediate regulation of glider vehicles was warranted and necessary." *Id.* at 4. Third, the petitioners asserted that reconsideration was warranted under Executive Order 13783. *Id.* at 6.

Deleted: In their petition, the representatives of the glider industry warned that the Phase 2 rule "would significantly curtail American manufacturing" and "effectively shut down the glider industry and the nearly 20,000 jobs it supports across the nation." Petition at 2. For example, the Fitzgerald company represented that it was "currently responsible for 1,600 direct and indirect jobs" in the states of Tennessee and Kentucky alone, and "several thousand more associated with suppliers across the country." *Id.* at 2. Fitzgerald further represented that, with the Phase 2 rule in effect, by the end of 2017 the company would be "forced to cut production and its workforce by 90%." *Id.*¶
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The petitioners took particular issue with what they characterized as EPA's having "assumed that the nitrogen oxide ('NOx') and particulate matter ('PM') emissions of glider vehicles using pre-2007 engines" would be "at least ten times higher than emissions from equivalent vehicles being produced with brand new engines." Petition at 5, *citing* 81 FR 73942. According to the petitioners, EPA had "relied on no actual data to support this conclusion," but had "simply relied on the pre-2007 standards." *Id.* In support, the petitioners included as an exhibit to their petition a letter from the President of the Tennessee Technological University ("Tennessee Tech"), which described a study recently conducted by Tennessee Tech. This study, according to the petitioners, had "analyz[ed] the NOx, PM, and carbon monoxide . . . emissions from both

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[14] *See* Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017) (Petition). Available in the rulemaking docket, EPA–HQ–OAR–2014–0827, and at https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

remanufactured and OEM engines," and "reached a contrary conclusion" regarding glider vehicle emissions. Petition at 5.

The petitioners maintained that the results of the study "showed that remanufactured engines from model years between 2002 and 2007 performed roughly on par with OEM 'certified' engines," and "in some instances even out-performed the OEM engines." *Id.* The petitioners further claimed that the Tennessee Tech research "'showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage.'" *Id.*, *quoting* Tennessee Tech letter at 2. Based on the Tennessee Tech study, the petitioners asserted that "glider vehicles would emit less than 12% of the total NOx and PM emissions for all Class 8 heavy duty vehicles . . . not 33% as the Phase 2 Rule suggests." *Id.*, *citing* 81 FR 73943.

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Further, the petitioners complained that the Phase 2 rule had "failed to consider the significant environmental *benefits* that glider vehicles create." Petition at 6 (emphasis in original). "Glider vehicle GHG emissions are less than those of OEM vehicles," the petitioners contended, "due to gliders' greater fuel efficiency," and the "carbon footprint of gliders is further reduced by the savings created by recycling materials." *Id.* The petitioners represented that "[g]lider assemblers reuse approximately 4,000 pounds of cast steel in the remanufacturing process," including "3,000 pounds for the engine assembly alone." *Id.* The petitioners pointed out that "[r]eusing these components avoids the environmental impact of casting steel, including the significant associated NOx emissions." *Id.* This "fact," the petitioners argued, is something that EPA should have been considered but was "not considered in the development of the Phase 2 rule." *Id.*

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EPA responded to the glider industry representatives' joint petition by separate letters on August 17, 2017, stating that the petition had "raise[d] significant questions regarding the EPA's authority under the Clean Air Act to regulate gliders."[15] EPA further indicated that it had "decided to revisit the provisions in the *Phase 2 Rule* that relate to gliders," and that the Agency "intends to develop and issue a Federal Register notice of proposed rulemaking on this matter, consistent with the requirements of the Clean Air Act."[16]

III. Basis for the Proposed Repeal

A. Statutory Analysis

EPA is proposing that the statutory interpretations on which the Phase 2 rule predicated its regulation of glider vehicles, glider engines, and glider kits were incorrect. EPA proposes an interpretation of the relevant language of the CAA under which glider vehicles are excluded from the statutory term "new motor vehicles" and glider engines are excluded from the statutory term "new motor vehicle engines," as both terms are defined in CAA section 216(3). Consistent with this interpretation of the scope of "new motor vehicle," EPA is further proposing that it has no authority to treat glider kits as "incomplete" new motor vehicles under CAA section 202(a)(1).

As was noted, a "new motor vehicle" is defined by CAA section 216(3) to mean, in relevant part, a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate

[15] *See, e.g.*, Letter from E. Scott Pruitt, EPA Administrator, to Tommy C. Fitzgerald, President, Fitzgerald Glider Kits (Aug. 17, 2017). Available in the rulemaking docket, EPA–HQ–OAR–2014–0827, and at https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-tma-ltr-2017-08-17.pdf.

[16] *Id.*

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Deleted: vehicles," which is the interpretation of section 216(3) that EPA is proposing here, then the Agency entirely lacks authority to regulate glider kits as "incomplete" new motor vehicles. Furthermore, given that a glider kit lacks a powertrain, a glider kit does not even meet the definition of "motor

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"incomplete" motor vehicles *See* 81 FR at 73514.¶
¶
CAA section 202(a)(1) provides as follows:¶
(1) The Administrator shall by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of *new motor vehicles* or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. Such standards shall be applicable to *such vehicles* and engines for their useful life (as determined under subsection (d) of this section, relating to useful life of vehicles for purposes of certification), whether *such vehicles* and engines *are designed as complete systems* or incorporate devices to prevent or control such pollution.¶
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purchaser." 42 U.S.C. § 7550(3). In basic terms, a glider vehicle consists of the new components that make up a glider kit, into which a previously owned powertrain has been installed. Prior to the time a completed glider vehicle is sold, it can be said that the vehicle's "equitable or legal title" has yet to be "transferred to an ultimate purchaser." It is on this basis that the Phase 2 rule found that a glider vehicle fits within the definition of "new motor vehicle." 81 FR 73514 (October 25, 2016).

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EPA's rationale for applying this reading of the statutory language was that "[g]lider vehicles are typically marketed and sold as 'brand new' trucks." 81 FR 73514 (October 25, 2016). EPA took note of one glider kit manufacturer's own advertising materials that represented that the company had ""mastered the process of taking the 'Glider Kit' and installing the components to work seamlessly *with the new truck*."" *Id.* (emphasis added in original). EPA stated that the "purchaser of a 'new truck' necessarily takes initial title to that truck." *Id.* (citing statements on the glider kit manufacturer's website). EPA rejected arguments raised in comments that "this 'new truck' terminology is a mere marketing ploy." *Id.* Rather, EPA stated, "it obviously reflects reality." *Id.*

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In proposing a new interpretation of the relevant statutory language, EPA now believes that its prior reading was not the best reading, and that the Agency failed to consider adequately the most important threshold consideration: *i.e.*, 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 – a vehicle comprised both of new *and* previously owned components. *See Chevron*, 467 U.S. at 843 n.9 (Where the "traditional tools of statutory

construction" allow one to "ascertain[] that Congress had an intention on the precise question at issue," that "intention is the law and must be given effect."). Where "Congress has not directly addressed the precise question at issue," and the "statute is silent or ambiguous with respect to the specific issue," it is left to the agency charged with implementing the statute to provide an "answer based on a permissible construction of the statute." *Id.* at 843.

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Focusing solely on that portion of the statutory definition that provides that a motor vehicle is considered "new" prior to the time its "equitable or legal title" has been "transferred to an ultimate purchaser," a glider vehicle would appear to qualify as "new." As the Supreme Court has repeatedly counseled, however, that is just the beginning of a proper interpretive analysis. The "definition of words in isolation," the Court has noted, "is not necessarily controlling in statutory construction." *See Dolan v. United States Postal Service*, 546 U.S. 481, 486 (2006). Rather, the "interpretation of a word or phrase depends upon reading the whole statutory text, considering the purpose and context of the statute," and "consulting any precedents or authorities that inform the analysis." *Id.* Similarly, in seeking to "determine congressional intent, using traditional tools of statutory construction," the "*starting point* is the language of the statute." *See Dole v. United Steelworkers of America*, 494 U.S. 26, 35 (1990) (emphasis added) (internal citation omitted). At the same time, "in expounding a statute," one is not to be "guided by a single sentence or member of a sentence," but is to "look to the provisions of the whole law, and to its object and policy." *Id.* (internal citations omitted).

Assessed in light of these principles, it is clear that EPA's reading of the statutory definition of "new motor vehicle" in the Phase 2 rule fell short. First, that reading failed to account for the

fact that, at the time this definition of "new motor vehicle" was enacted, it is likely 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. The manufacture of glider vehicles to salvage the usable powertrains of trucks wrecked in accidents goes back a number of years.[18] But only more recently – after the enactment of Title II – have glider vehicles been produced in any great number.

Furthermore, the concept of deeming a motor vehicle to be "new" based on its "equitable or legal title" not having been transferred to an "ultimate purchaser" appears to have originated with an otherwise unrelated federal statute that predated Title II by a few years – *i.e.*, the Automobile Information Disclosure Act of 1958, Pub. L. No. 85-506 (Disclosure Act).[19] The history of Title II's initial enactment and subsequent development indicates that, in adopting a definition of "new motor vehicle" for purposes of the Clean Air Act, Congress drew on the approach it had taken originally with the Disclosure Act.

Among other things, the Disclosure Act requires that a label be affixed to the windshield or side window of new automobiles, with the label providing such information as the Manufacturer's Suggested Retail Price. *See* 15 U.S.C. § 1232 ("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 . . . .") (emphases added). The Disclosure Act defines the term "automobile" to "include[] any passenger car or

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[18] EPA-HQ-OAR-2014-0827-1964.
[19] The provisions of the Disclosure Act are set forth at 15 U.S.C. §§ 1231-1233.

station wagon," and defines the term "new automobile" to mean "an automobile the equitable or legal title to which has never been transferred by a manufacturer, distributor, or dealer to an ultimate purchaser." *See* 15 U.S.C. § 1231(c), (d).

In 1965, Congress amended the then-existing Clean Air Act, and for the first time enacted provisions directed at the control of air pollution from motor vehicles. *See* Clean Air Act Amendments of 1965, Pub. L. 89-272 (1965 CAA). Included in the 1965 CAA was a brand new Title II, the "Motor Vehicle Air Pollution Control Act," the structure and language of which largely mirrored key provisions of Title II as it exists today. Section 202(a) of the 1965 CAA provided that the "Secretary [of what was then the Department of Health, Education and Welfare] shall by regulation, giving appropriate consideration to technological feasibility and economic costs, prescribe . . . standards applicable to the emission of any kind of substance, from any class or classes of *new motor vehicles or new motor vehicle engines*, which in his judgment cause or contribute to, or are likely to cause or to contribute to, air pollution which endangers the health or welfare of any persons . . . ." Pub. L. 89-272, 79 Stat. 992 (emphasis added).

Section 208 of the 1965 CAA defined "motor vehicle" in terms identical to those in the CAA today: "any self-propelled vehicle designed for transporting persons or property on a street or highway." Pub. L. 89-272, 79 Stat. 995. The 1965 CAA defined "new motor vehicle" and "new motor vehicle engine" to mean, as relevant here, "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser; and the term 'new motor vehicle engine'" to mean "an engine in a new motor vehicle or a motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." *Id.* Again, in relevant

part, the 1965 CAA definitions of these terms were identical to those that currently appear in CAA section 216(3).

While the legislative history of the 1965 CAA does not expressly indicate that Congress based its definition of "new motor vehicle" on the definition of "new automobile" first adopted by the Automobile Information Disclosure Act of 1958, it seems clear that such was the case. The statutory language of the two provisions is identical in all pertinent respects,[20] and there appears to be no other federal statute, in existence prior to enactment of the 1965 CAA, from which Congress could have derived that terminology.

Subsequently, the statutory language from the 1965 CAA, defining the terms "motor vehicle," "new motor vehicle," "new motor vehicle engine," "ultimate purchaser," and "manufacturer" was incorporated verbatim in the Air Quality Act of 1967 (1967 AQA). *See* Pub. L. No. 148, 81 Stat. 503. The Clean Air Act Amendments of 1970 (1970 CAAA) did not change those definitions, except to add the language regarding "vehicles or engines imported or offered for importation" that currently appears in CAA section 216(3). *See* Pub. L. No. 91-604, 84 Stat. 1694, 1703.[21]

[20] Further, the 1965 CAA's definition of "ultimate purchaser," as set forth in section 208(5), for the most part tracks the Disclosure Act's earlier-enacted definition: "The term 'ultimate purchaser' means, with respect to any new automobile, the first person, other than a dealer purchasing in his capacity as a dealer, who in good faith purchases such new automobile for purposes other than resale." *Compare* 1965 CAA section 208(5), Pub. L. 89-272, 79 Stat. 995 *with* 15 U.S.C. § 1231(e). Such is the case, too, with respect to the 1965 CAA's definition of "manufacturer." *Compare* 1965 CAA section 208(1), Pub. L. 89-272, 79 Stat. 994-995 *with* 15 U.S.C. § 1231(a).

[21] The legislative history of both the 1967 AQA and 1977 CAAA is silent with respect to the origin of Title II's definitions of "new motor vehicle," "new motor vehicle engine," "ultimate purchaser," and "manufacturer," which further underscores that Congress had originally derived those definitions from the Disclosure Act.

The fact that Congress, in first devising the CAA's definition of "new motor vehicle" for purposes of Title II, drew on the pre-existing definition of "new automobile" in the Automobile Information Disclosure Act of 1958 serves to illuminate congressional intent. As with the Disclosure Act, Congress in the 1965 CAA selected the point of first transfer of "equitable or legal title" to serve as a bright line – *i.e.*, to distinguish between those "new" vehicles (and engines) that would be subject to emission standards adopted pursuant to CAA section 202(a)(1) and those existing vehicles that would not be subject. Insofar as the 1965 CAA definition of "new motor vehicle" was based on the Disclosure Act definition of "new automobile," it would seem clear that Congress intended, for purposes of Title II, that a "new motor vehicle" would be understood to mean something equivalent to a "new automobile" – *i.e.*, 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.

Given this, EPA does not believe that congressional intent as to the meaning of the term "new motor vehicle" can be clearly ascertained on the basis of an isolated reading of a few words in the statutory definition, where that reading is divorced from the structure and history of the CAA as a whole. Based on that structure and history, it seems likely that Congress understood a "new motor vehicle," as defined in CAA § 216(3), to be a vehicle comprised entirely of new parts and certainly not a vehicle with a used engine. At a minimum, ambiguity exists. This leaves EPA with the task of providing an "answer based on a permissible construction of the statute." *Chevron*, 467 U.S. at 843.

1. Glider vehicles

EPA is proposing to interpret "new motor vehicle," as defined in CAA § 216(3), as not including glider vehicles. This is a reasonable interpretation – and commonsense would agree – insofar as it takes account of the reality that significant elements of a glider vehicle (*i.e.*, the powertrain elements, including the engine and the transmission) are previously owned components. Under the Phase 2 rule's interpretation, in contrast, the act of installing a previously owned powertrain into a glider kit – *i.e.*, something that, as is explained further below, is not a "motor vehicle" as defined by the CAA – results in the creation of a *new* "motor vehicle." EPA believes that Congress, in adopting a definition of "new motor vehicle" for purposes of Title II, never had in mind that the statutory language would admit of such a counterintuitive result.

In other words, EPA now believes that, in defining "new motor vehicle," Congress did not intend that a vehicle comprised of a new outer shell conjoined to a previously owned powertrain should be treated as a "new" vehicle, based solely on the fact that the vehicle may have been assigned a new title following assembly. In this regard, insofar as Title II's regulatory regime was at its inception directed at the emissions produced by new vehicle *engines*,[23] it is not at all clear that Congress intended that Title II's reach should extend to a vehicle whose outer parts may be "new" but whose engine was previously owned.

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2. Glider engines

EPA proposes to find that, since a glider vehicle does not meet the statutory definition of a "new motor vehicle," it necessarily follows that a glider engine is not a "new motor vehicle engine" within the meaning of CAA section 216(3). Under that provision, a motor vehicle engine is deemed to be "new" in either of two circumstances: 1) the engine is "in a new motor vehicle," or

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[23] *See* footnote 3, *supra*.

2) the "equitable or legal title" to the engine has "never been transferred to the ultimate purchaser." The second of these circumstances can never apply to a glider engine, which is invariably an engine that has been previously owned.

As to the first circumstance, a glider engine is installed in a glider kit, which in itself is not a "motor vehicle." A glider kit becomes a "motor vehicle" only after an engine (and the balance of the powertrain) has been installed. But while adding a previously owned engine to a glider kit may result in the creation of a "motor vehicle," the assertion that the previously owned engine thereby becomes a "*new* motor vehicle engine" within the meaning of CAA section 216(3), due to the engine's now being in a "new motor vehicle," reflects circular thinking. It presupposes that the installation of a (previously owned) engine in a glider kit creates not just a "motor vehicle" but a "new motor vehicle." EPA is proposing to interpret the relevant statutory language in a manner that rejects the Agency's prior reliance on the view that 1) installing a previously owned engine in a glider kit transforms the glider kit into a "new motor vehicle," and 2) that, thereafter, the subsequent presence of that previously owned engine in the supposed "new motor vehicle" transforms that engine into a "new motor vehicle engine" within the meaning of CAA section 216(3).

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3. Glider kits

Under EPA's proposed interpretation, EPA would have no authority to regulate glider kits under CAA section 202(a)(1). If glider vehicles are not "new motor vehicles," which is the interpretation of CAA section 216(3) that EPA is proposing here, then the Agency lacks authority to regulate glider kits as "incomplete" new motor vehicles. Further, given that a glider kit lacks a powertrain, a glider kit does not explicitly meet the definition of "motor vehicle,"

which, in relevant part, is defined to mean "any *self-propelled* vehicle." 42 U.S.C § 7550(2) (emphasis added). It is not obvious that a vehicle without a motor could constitute a "motor vehicle."

4. Issues for which EPA seeks comment

EPA believes that its proposed interpretation is the most reasonable reading of the relevant statutory language, and that its proposed determination, based on this interpretation, that regulation of glider vehicles, glider engines, and glider kits is not authorized by CAA section 202(a)(1) is also reasonable. EPA seeks comment on this interpretation.

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Deleted: reasonable. Comments submitted in the Phase 2 rulemaking docket leads the Agency to understand that a glider vehicle is a suitable and affordable option for those small businesses and independent operators who cannot afford to purchase a truly new vehicle, but who otherwise wish to replace an older vehicle with a vehicle that is equipped with up-to-date safety features and, as well, may produce fewer emissions than the older vehicle. In other words, EPA considers that at issue here is not so much whether the availability of glider vehicles will result in fewer new trucks being purchased but, rather, whether limiting the availability of glider vehicles will simply result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA seeks comment on this understanding of the situation

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Comments submitted in the Phase 2 rulemaking docket lead EPA to believe that a glider vehicle is often a suitable option for those small businesses and independent operators who cannot afford to purchase a new vehicle, but who wish to replace an older vehicle with a vehicle that is equipped with up-to-date safety features. EPA solicits comment and further information as to this issue. 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.

EPA also seeks comment on the matter of the anticipated purchasing behavior on the part of the smaller trucking operations and independent drivers if the regulatory provisions at issue were to

repealed. Further, EPA seeks comment on the relative expected emissions impacts if the regulatory requirements at issue here were to be repealed or were to be left in place.

Finally, EPA seeks comment on whether, if the Agency were to determine not to adopt the interpretation of CAA sections 202(a)(1) and 216(3) being proposed here, EPA should nevertheless revise the "interim provisions" of Phase 2 rule, 40 CFR 1037.150(t)(1)(ii), to increase the exemption available for small manufacturers above the current limit of 300 glider vehicles per year. EPA seeks input on how large an increase would be reasonable, were the Agency to increase the limit in taking final action. Further, EPA seeks comment on whether, if the Agency were to determine not to adopt the statutory interpretation being proposed here, EPA should nevertheless extend by some period of time the date for compliance for glider vehicles, glider engines, and glider kits set forth in 40 CFR 1037.635. EPA seeks comment on what would be a reasonable extension of the compliance date.

Deleted: EPA also solicits comment on whether, in lieu of regulation under CAA section 202(a)(1), it might be reasonable for EPA to establish standards for glider kits, glider vehicles, and glider engines pursuant to authority the Agency may have under other provisions of the CAA, such as CAA section 202(a)(3)(D), which authorizes EPA to "prescribe requirements to control rebuilding practices" with respect to heavy duty engines. *See* 42 U.S.C. § 7521(a)(3)(D).¶

B. Conclusion

EPA has a fundamental obligation to ensure that the regulatory actions it takes are authorized by Congress, and that the standards and requirements that it would impose on the regulatory community have a sound and reasonable basis in law. EPA is now proposing to find that the most reasonable reading of the relevant provisions of the CAA, including CAA sections 202(a)(1), 216(2), and 216(3) is that glider vehicles should not be regulated as "new motor vehicles," that glider engines should not be regulated as "new motor vehicle engines," and that glider kits should not be regulated as "incomplete" new motor vehicles. Based on this proposed interpretation, EPA is proposing to repeal those provisions of the Phase 2 rule applicable to glider vehicles, glider engines, and glider kits.

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IV. Public Participation

We request comment by January 5, 2018 on all aspects of this proposal. This section describes how you can participate in this process.

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Materials related to the Heavy-Duty Phase 2 rulemaking are available in the public docket noted above and at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.

1. How Do I Prepare and Submit Information?

Direct your submittals to Docket ID No. EPA–HQ–OAR–2014-0827. EPA's policy is that all submittals received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the submittal includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

Do not submit information to the docket that you consider to be CBI or otherwise protected through www.regulations.gov. The www.regulations.gov web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your submittal. If you submit an electronic submittal, EPA recommends that you include your name and other contact information in the body of your submittal and with any disk or CD–ROM you submit. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm.

EPA will hold a public hearing on the date and at the location stated in the DATES Section. To attend the hearing, individuals will need to show appropriate ID to enter the building. The hearing will start at 10:00 a.m. local time and continue until everyone has had a chance to speak. More details concerning the hearing can be found at https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.

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2. Submitting CBI

Do not submit this information to EPA through www.regulations.gov or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI). In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

3. Tips for Preparing Your Comments

When submitting comments, remember to:

- Identify the action by docket number and other identifying information (subject heading, Federal Register date and page number).
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient

detail to allow for it to be reproduced.

- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified in the DATES section above.

V. Statutory and Executive Order Reviews

(1) Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

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(2) Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is expected to be an Executive Order 13771 deregulatory action. This proposed rule is expected to provide meaningful burden reduction by eliminating regulatory requirements for glider manufacturers.

(3) Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA because it does not contain any information collection activities. It would only eliminate regulatory requirements for glider manufacturers.

(4) Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any

significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. Small glider manufacturers would be allowed to produce glider vehicles without meeting new motor vehicle emission standards. We have therefore concluded that this action will have no adverse regulatory impact for any directly regulated small entities.

(5) Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments.

(6) Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

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(7) Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This proposed rule will be implemented at the Federal level and affects glider manufacturers. Thus, Executive Order 13175 does not apply to this action.

(8) Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not an economically significant regulatory action as defined by Executive Order 12866. However, the Emission Requirements

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for Glider Vehicles, Glider Engines, and Glider Kits was anticipated to lower ambient concentrations of $PM_{2.5}$ and some of the benefits of reducing these pollutants may have accrued to children. Our evaluation of the environmental health or safety effects of these risks on children is presented in Section XIV.H. of the HD Phase 2 Rule.[24] Some of the benefits for children's health as described in that analysis would be lost as a result of this action.

In general, current expectations about future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking. Furthermore, the proposed action does not affect the level of public health and environmental protection already being provided by existing NAAQS and other mechanisms in the CAA. This proposed action does not affect applicable local, state, or federal permitting or air quality management programs that will continue to address areas with degraded air quality and maintain the air quality in areas meeting current standards. Areas that need to reduce criteria air pollution to meet the NAAQS will still need to rely on control strategies to reduce emissions. To the extent that states use other mechanisms in order to comply with the NAAQS, and still achieve the criteria pollution reductions that would have occurred under the CPP, this proposed rescission will not have a disproportionate adverse effect on children's health.

(9) Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

[24] 81 FR 73478 (October 25, 2016).

(10) National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

(11) Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations, and Low-Income Populations

Pursuant to Executive Order 12898 (59 FR 7629, February 16, 1994), EPA considered environmental justice concerns of the final HD Phase 2 rule. EPA's evaluation of human health and environmental effects on minority, low-income or indigenous populations for the final HD Phase 2 rule is presented in the Preamble, Section VIII.A.8 and 9 (81 FR 73844-7, October 25, 2016). We have not evaluated the impacts on minority, low-income or indigenous populations that may occur as a result of the proposed action to rescind emissions requirements for heavy-duty glider vehicles and engines. EPA likewise has not considered the economic and employment impacts of this rule specifically as they relate to or might impact minority, low-income and indigenous populations.

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List of Subjects in 40 CFR Parts 1037 and 1068

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Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements, Warranties.

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Dated:

E. Scott Pruitt,
Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as set forth below.

PART 1037—CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

1. The authority for part 1037 continues to read as follows:

Authority: 42 U.S.C. 7401—7671q.

Subpart B – [Amended]

2. Section 1037.150 is amended by removing and reserving paragraph (t) as follows:

§1037.150 Interim provisions.

* * * * *

(t) [Reserved]

* * * * *

Subpart G – [Amended]

§1037.635 [Removed]

3. Section 1037.635 is removed.

Subpart I – [Amended]

4. Section 1037.801 is amended by removing the definitions "glider kit" and "glider vehicle" and revising the definitions of "manufacturer" and "new motor vehicle" to read as follows:

§ 1037.801 Definitions.

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Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures or assembles a vehicle (including a trailer or another incomplete vehicle) for sale in the United States or otherwise introduces a new motor vehicle into commerce in the United States. This includes importers who import vehicles for resale.

* * * * *

New motor vehicle has the meaning given in the Act. It generally means a motor vehicle meeting the criteria of either paragraph (1) or (2) of this definition. New motor vehicles may be complete or incomplete.

(1) A motor vehicle for which the ultimate purchaser has never received the equitable or legal title is a new motor vehicle. This kind of vehicle might commonly be thought of as "brand new" although a new motor vehicle may include previously used parts. Under this definition, the vehicle is new from the time it is produced until the ultimate purchaser receives the title or places it into service, whichever comes first.

(2) An imported heavy-duty motor vehicle originally produced after the 1969 model year is a new motor vehicle.

* * * * *

5. The authority for part 1068 continues to read as follows:

Authority: 42 U.S.C. 7401—7671q.

Subpart B – [Amended]

6. Section 1068.120 is amended by revising paragraph (f)(5) to read as follows:

§1068.120 Requirements for rebuilding engines.

* * * * *

(f) * * *

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(5) The standard-setting part may apply further restrictions to situations involving installation of used engines to repower equipment.

* * * * *

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At issue here is the second sentence of paragraph (a)(1), including, specifically, the words: "[s]uch standards shall be applicable to such vehicles . . . whether such vehicles . . . are designed as complete systems." 42 U.S.C. § 7521(a)(1). In the Phase 2 rule, EPA took the position that the words "whether such vehicles . . . are designed as complete systems" can be interpreted as authorizing the Agency to regulate glider kits as "incomplete vehicles." *See* 81 FR at 73515 ("[I]t is evident that . . . glider kits should be treated as vehicles, albeit incomplete ones."). The Agency had reasoned that a glider kit "is not a few assembled components; rather, it is an assembled truck with a few components missing

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Of course, among those "few" missing components is the powertrain, which enables self-propulsion and which is responsible for the emission of air pollutants.

In any event, the phrase "such vehicles" from the second sentence of clause (a)(1) is a reference back to the first sentence of clause (a)(1), which states that the Administrator "shall by regulation prescribe (and from time to time revise) . . . standards applicable to the emission of any air pollutant from any class or classes of *new motor vehicles*." 42 U.S.C. § 7521(a)(1) (emphasis added). Because an engine-less glider kit, incapable of self-propulsion, does not explicitly fit within the definition of a "motor vehicle," the fact that the second sentence of clause (a)(1) makes reference to "whether *such* vehicles" [*i.e.*, "new motor vehicles"] . . . are designed as complete systems" cannot support the claim that EPA is authorized to regulate glider kits as "incomplete" motor vehicles. The assertion that CAA section 202(a)(1) authorizes the regulation of glider kits as "incomplete" vehicles is based solely on the presupposition that glider kits *are* "such vehicles" – *i.e.*, "new motor vehicles." But a glider kit does not meet the definition of

"motor vehicle," much less "new motor vehicle." Accordingly, EPA is here proposing to determine that the Phase 2 rule wrongly construed this language from CAA section 202(a)(1) when it interpreted that language as giving EPA authority to regulate them as "incomplete" vehicles. EPA solicits comment on this interpretation.

With respect to glider vehicles – *i.e.*, a glider kit in which a previously owned powertrain has been installed – EPA is proposing to interpret the definition of "new motor vehicle" in CAA section 216(3) as not including glider vehicles. The principal components of a glider vehicle (*i.e.*, the powertrain elements, including the engine and the transmission) are components that have been previously owned and, typically, rebuilt. Therefore, the "equitable or legal title" to the most significant parts of the glider vehicle – and the components that actually produce air pollutant emissions – have previously been "transferred to an ultimate purchaser," *i.e.*, the original owner of the donor truck. For this reason, EPA is proposing to find that glider vehicles should not be considered to be "new," and that the statutory language in CAA § 216(3) does not include glider vehicles.[1]

In taking the contrary position, the Phase 2 rule is effectively claiming that the act of installing a *previously owned* powertrain into a glider kit – *i.e.*, something that is not itself a "motor vehicle" – results in the creation of a *new* "motor vehicle." This counterintuitive result, at a minimum, suggests that, in defining "new motor vehicle" generally to mean

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[1]Underscoring the fact that this is the natural understanding of the terms that Congress used to define "new motor vehicle" is that, for their part, the National Highway Traffic Safety Administration's regulations establish that a truck is not considered to be "newly manufactured" if the "engine, transmission, and drive axle(s) (as a minimum) of [an] assembled vehicle are not new" and at least two of those three components come from the same donor vehicle. *See* 49 C.F.R. § 571.7(e). And while it may be the case that some glider manufacturers have marketed their products as being like "new trucks," *see* 81 FR at 73514, the relevant consideration is the text of the CAA itself, which precludes a truck from being deemed "new" where title has already been transferred to an "ultimate purchaser."

Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles

November 20, 2017

National Vehicle & Fuel Emissions Laboratory
U.S. Environmental Protection Agency
Ann Arbor, Michigan

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1. Executive Summary

This report summarizes the results from emissions testing of a 2016 model year (MY) Peterbilt 389 sleeper cab tractor and a 2017 MY Peterbilt 579 sleeper cab tractor that were produced as glider vehicles (i.e., a vehicle with a new chassis and a used powertrain). In addition, these glider test results are compared to equivalent tests of conventionally manufactured 2014 and 2015 MY tractors.

The glider vehicles tested include one of the more popular engine and vehicle configurations currently being produced as glider vehicles. These results are useful in evaluating the emission impacts of glider vehicles, and the observations made in this report are consistent with the expected emissions performance of heavy-duty highway diesel engines manufactured in the 1998-2002 timeframe.

The criteria pollutant emissions (NOx, PM, HC, CO) from the 2016 MY Peterbilt 389 and 2017 Peterbilt 579 glider vehicles were consistently higher than those of the conventionally manufactured 2014 and 2015 tractors. The extent to which this occurred depended on the pollutant and the test cycle.

- Under highway cruise conditions, NOx emissions from the Peterbilt 389 and Peterbilt 579 glider vehicles were approximately 43 times as high, and PM emissions were approximately 55 times as high as the conventionally manufactured 2014 and 2015 MY tractors.
- Under transient operations, absolute NOx and PM emissions were higher for the Peterbilt 389 and Peterbilt 579 glider vehicles on all duty cycles. On a relative basis, the glider vehicle NOx emissions were 4-5 times higher, and PM emissions were 50-450 times higher than the conventionally manufactured 2014 and 2015 MY tractors.
- HC and CO emissions for the Peterbilt 389 and Peterbilt 579 glider vehicles were also significantly higher than the conventionally manufactured 2014 and 2015 MY tractors on a relative basis. However, on an absolute basis, they appear to be less of a concern than the NOx and PM emissions.
- CO_2 emissions from the Peterbilt 389 and Peterbilt 579 glider vehicles were lower than the conventionally manufactured vehicles when measured on the chassis dynamometer without taking into account the differences in the aerodynamic drag between the vehicles.

2. Test Program

All testing was conducted by the US Environmental Protection Agency (EPA) in October and November 2017 at the National Vehicle Fuel and Emissions Laboratory (NVFEL). Two glider vehicles were tested on a heavy-duty chassis dynamometer to measure the emissions in a controlled environment. The following subsections describe the elements of the test program.

The testing was conducted using the same test cycles and test procedures that EPA has previously used to measure emissions from heavy-duty diesel vehicles, which allows us to put glider vehicle emission results into context. Comparisons to these other highway heavy-duty vehicles are discussed in Section 4.

2.1 Glider Vehicle Descriptions

Two newer model year glider vehicles with remanufactured pre-2002 MY engines were emissions tested in this program.

2.1.1 Glider #1 Vehicle Description

The first glider vehicle tested (Glider #1) was a 2016 MY Peterbilt 389 Glider-Sleeper with a Fitzgerald-rebuilt 12.7 L Detroit Diesel Series 60 engine with 500 horsepower, an Eaton 13 speed manual transmission, and 3.55 rear axle ratio. The Peterbilt 389 exterior has a traditional design that has a squarer front rather than a more aerodynamic design that is more common for model year 2016 and later model vehicles. The engine did not include an emission label, but is believed to have been remanufactured from an engine originally certified in a model year between 1998 and 2002. It included electronically-controlled fuel injection, but not exhaust gas recirculation or any exhaust aftertreatment. The odometer read 179,273 miles at the start of testing.

The malfunction indicator light (MIL), also known as the check engine light, was illuminated when Glider #1 was received. Upon inspection it was determined that the engine fault code was "Engine Oil Pressure> Fault Mode ID:0-DATA VALID BUT ABOVE NORMAL OPERATIONAL RANGE." EPA tested the as-received condition because it is representative of how the vehicle was driving in the real world. Upon completion of the first set of testing, diagnostics were performed to fix the issue. CAN bus data recorded during testing was reviewed and it was determined that in addition to the oil pressure signal, temperature readings from the fuel, oil and intake air sensor were all dropping low simultaneously. The sensor wiring harness was removed from the vehicle because the MIL was intermittent and identified an error with the oil pressure. The harness was inspected visually and evaluated for electrical continuity. During inspection it was determined that there was oil in the connector of the oil temperature sensor as well as fluid in the connector for the coolant sensor. These connectors were cleaned and the harness was reinstalled. Glider #1 was then driven and it was concluded that the repair was successful. The On-Board Diagnostics (OBD) system did not

detect an issue for the remainder of testing. The emissions tests were then repeated to evaluate the emissions of a properly performing vehicle.

2.1.2 Glider #2 Vehicle Description

The second glider vehicle tested (Glider #2) was a 2017 MY Peterbilt 579 Glider-Sleeper cab tractor with a Fitzgerald-rebuilt 12.7 L Detroit Diesel Series 60 engine with 500 horsepower and an Eaton RTX-16710B 10 speed manual transmission. The body of the Peterbilt 579 tractor was more aerodynamic than the Peterbilt 389. Similar to Glider #1, the engine in this vehicle did not include an emission label, but is believed to have been remanufactured from an engine originally certified in a model year between 1998 and 2002. It included electronically-controlled fuel injection, but not exhaust gas recirculation or any exhaust aftertreatment. The vehicle had approximately 30,600 miles at the start of testing. Unlike Glider #1, Glider #2 did not have any check engine light warnings during the testing.

2.2 Road Load Coefficients

Chassis dynamometer testing requires a simulation of the road load impacts, such as aerodynamics and losses associated with the driveline. These parameters simulate the amount of resistance (i.e., load) that the vehicle is under at different vehicle speeds. The actual road load impact varies significantly in-use because it is dependent on variables such as an actual trailer being pulled and the weight of the vehicle. Road load coefficients are frequently determined by conducting coastdown testing prior to chassis dynamometer testing. In this instance, EPA did not conduct coastdown testing to determine the road load coefficients of the vehicles due to the limited amount of time the glider vehicles were on loan to EPA. Rather, we tested the vehicles each with two sets of road load coefficients covering a range of typical operation. The first set of road load coefficients represents a 60,000 pound combined weight of the tractor, trailer, and payload. The second set of road load coefficients represents a less aerodynamic vehicle with 80,000 pound combined weight of the tractor, trailer, and payload. The target and actual road load coefficients used in the testing are shown in Table 1.

Table 1: Road Load Coefficients

	Target Coefficients			Set Coefficients		
Configuration	A (lbf)	B (lbf/mph)	C (lbf/mph^2)	A (lbf)	B (lbf/mph)	C (lbf/mph^2)
Glider #1, 60k Test Weight	345.090	0.0000	0.15380	235.350	-2.1042	0.143390
Glider #1, 80k test weight	446.350	7.76060	0.14780	336.690	5.5976	0.137120
Glider #2, 60k Test Weight	345.090	0.0000	0.15380	204.530	-1.4243	0.145510
Glider #2, 80k test weight	446.350	7.76060	0.14780	314.620	5.9516	0.145980

2.3 Test Fuel

The test fuel used in this program met the EPA highway certification diesel fuel specifications in 40 CFR part 1065. The fuel properties can be found in Table 2. The glider vehicles went through a triple drain and flush procedure as shown in Table 3 to ensure the engine was operating on the test fuel.

Table 2: Certification Diesel Fuel Specifications

FTAG	Fuel Name	ALPHA	BETA	Cetane	Net Heating Value (BTU/lb)	Carbon Weight Fraction	Sulfur (ppm)	Specific Gravity
26758	Federal Cert Diesel 7-15 ppm Sulfur	1.78	0	44.3	18406	0.8699	8.4	0.8536

Table 3: Fuel change procedure

Step	Description
1	With the ignition key in OFF position, drain vehicle fuel completely via installed fuel drain or the fuel rail.
2	Fill fuel tank to 10% with Diesel Fuel, NVFEL FTAG 26758.
3	Operate the vehicle at idle for 10-15 minutes to allow the fuel system to purge and stabilize.
4	Repeat Steps 1-3. (If repeated steps 1-3, move to Step 5)
5	Repeat Steps 1-3, but fill the fuel tank to 100% with NVFEL Diesel Fuel, FTAG 26758.
6	Run vehicle road load derivations.

2.4 Test Cycles

The emission tests for both gliders were conducted on a chassis dynamometer using three different sets of heavy-duty drive cycles representing a variety of operation. A cold start Heavy-Duty Vehicle Urban Dynamometer Driving Schedule (UDDS) sequence, a World Harmonized Vehicle Cycle (WHVC) sequence, and a Super Cycle.

The cold start sequence consisted of the UDDS cycle, a twenty-minute soak period followed by another UDDS, another twenty-minute soak period, a third UDDS cycle and finishing with forty-five minutes of idling. The UDDS sequence is shown in Figure 1.

The World Harmonized Vehicle Cycle (WHVC) was first run as a warmup cycle without emission measurement followed by a second WHVC where emissions were measured. The WHVC cycle is shown in Figure 2.

The Super Cycle followed the WHVC sequence. If more than twenty minutes elapsed between the cycles, then another warm-up WHVC was run without emission measurement to ensure the Super Cycle included a hot start test. The Super Cycle consists of five California Air Resources Board (ARB) Heavy-Duty Transient Cycles (HDT), a ten-minute idle period, and 55 mph and 65 mph cruise cycles with 0.5 mph/sec acceleration/deceleration rates. The Super Cycle trace is shown in Figure 3.

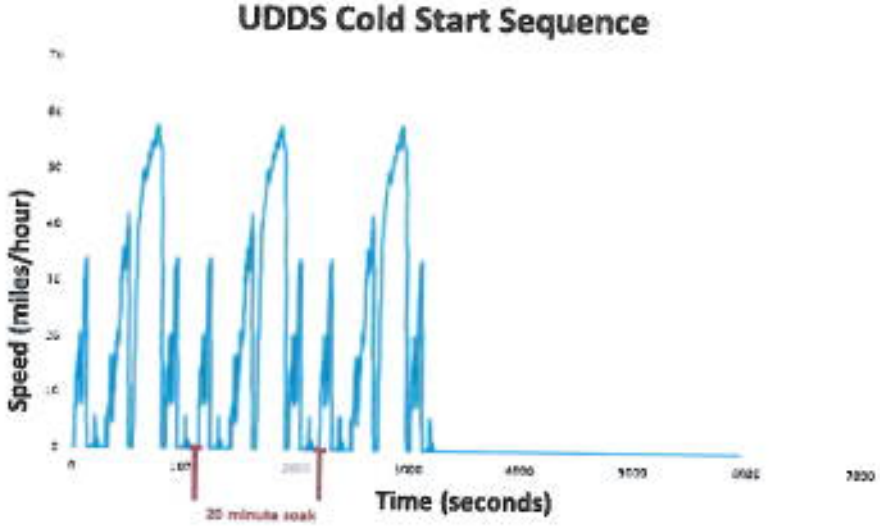

Figure 1: EPA UDDS test cycle speed vs. time profile

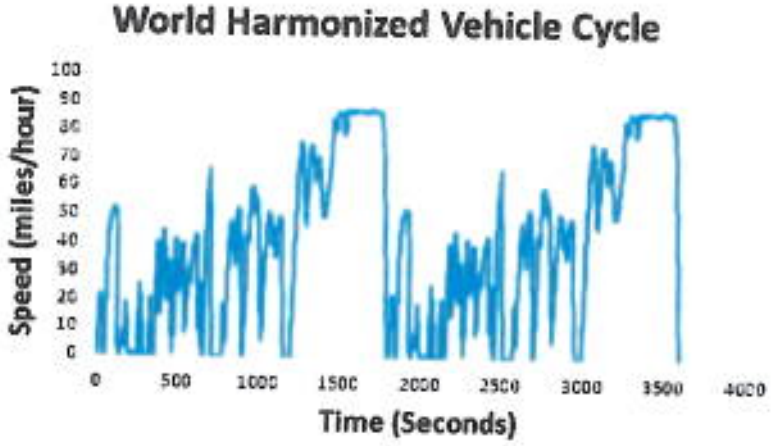

Figure 2: World Harmonized Vehicle Cycle speed vs. time profile

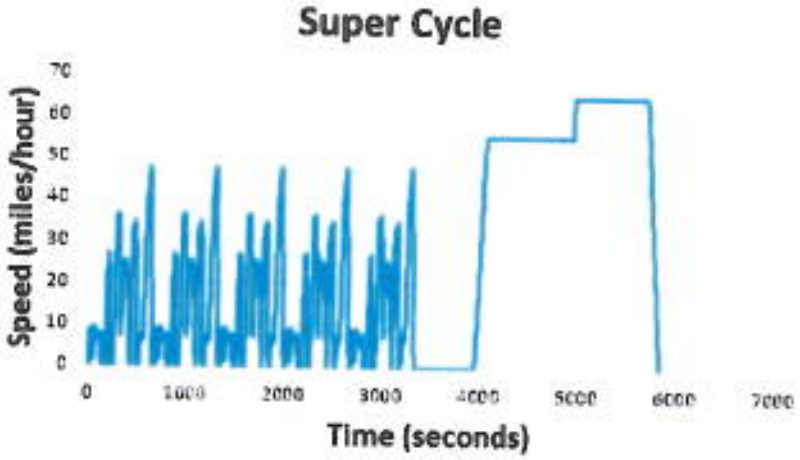

Figure 3: Super Cycle speed vs. time profile

Chassis testing of Glider #2 was also conducted to simulate the engine-based Supplemental Emission Test (SET) defined in 40 CFR 86.1360. Duty cycles were created that matched the defined engine speeds of the SET cycle by driving the vehicle at a constant speed and matched engine torque at the 100%, 75%, 50% and 25% load points at each speed by varying simulated road grade.

The first step of the SET cycle development was to obtain the engine torque curve. This was done by having the dynamometer linearly ramp the vehicle speed from approximately 16 to 68 mph over 315 seconds with the pedal position at 100%. Since the dynamometer was controlling speed for this test instead of torque, the engine power was determined by using the

measured power from the dynamometer corrected for the tire and driveline losses by taking the difference of the losses of target and set coefficients and an assumed axle efficiency of 94%. The resulting torque curve from the test is shown in Figure 4. Using the torque curve, the intermediate test speeds "A", "B", and "C" were calculated according to 40 CFR 1065.610.

Finally, three vehicle duty-cycles were created to simulate the engine-based SET on the chassis dynamometer, one for each intermediate speed as shown in Figure 5, Figure 6 and Figure 7. This duty cycle is similar to running the SET as a discrete mode test where the engine is stabilized at each speed and torque setpoint before sampling emissions and the transitions from mode-to-mode are not sampled. The duty cycles were created in this manner because running a Ramped Modal Cycle (RMC) on a chassis dynamometer would be difficult and would not allow for the transmission to be kept in direct drive.

Figure 4 also shows the engine speed and torque where the engine operated for each SET setpoint during the testing. One observation from this figure is that the test speed for the C100 point was slightly lower than the setpoint. This was because the engine was not able to maintain vehicle speed at the defined road grade of the cycle, but since the shift in speed was slight the results were still meaningful for the purpose of this testing.

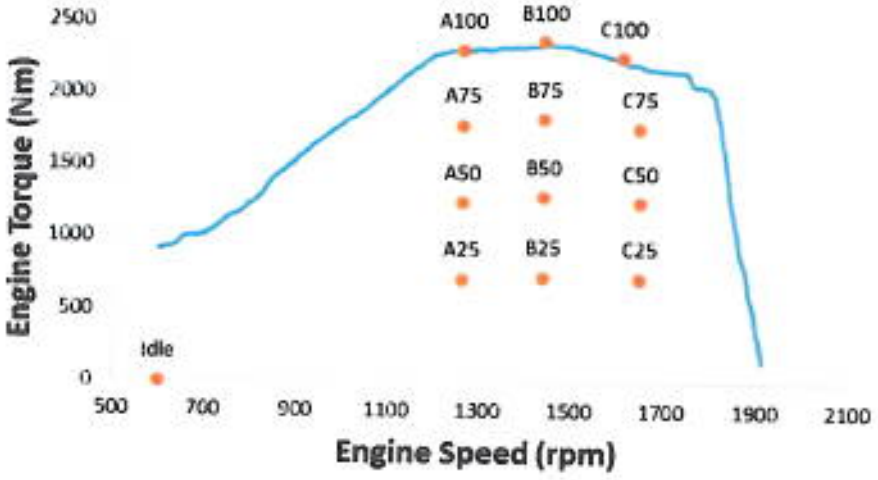

Figure 4: Glider #2 torque curve and SET test points

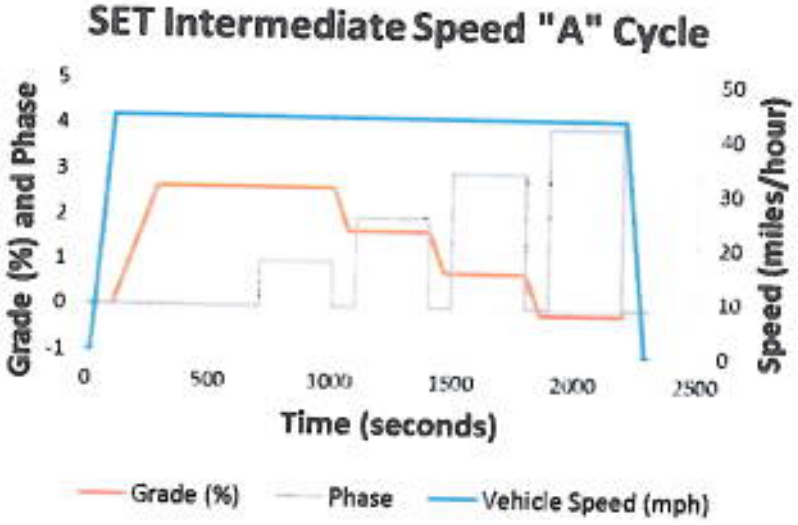

Figure 5: SET Intermediate Speed "A" Cycle speed, grade and phase vs. time

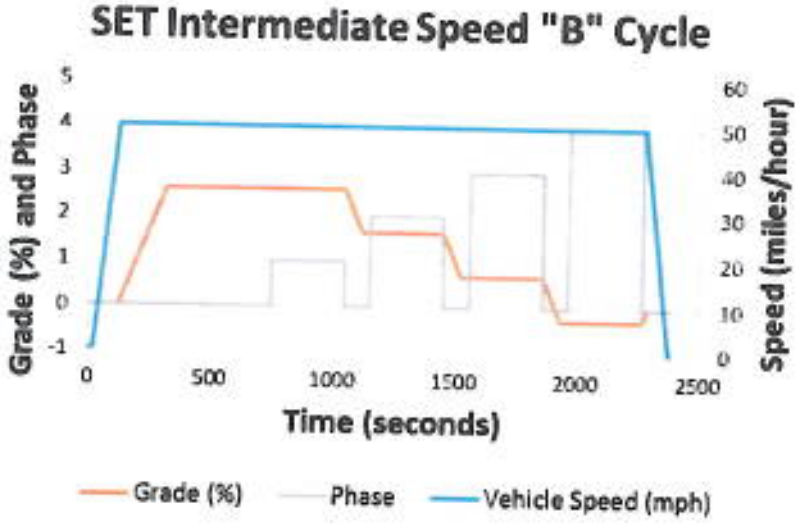

Figure 6: SET Intermediate Speed "B" Cycle speed, grade and phase vs. time

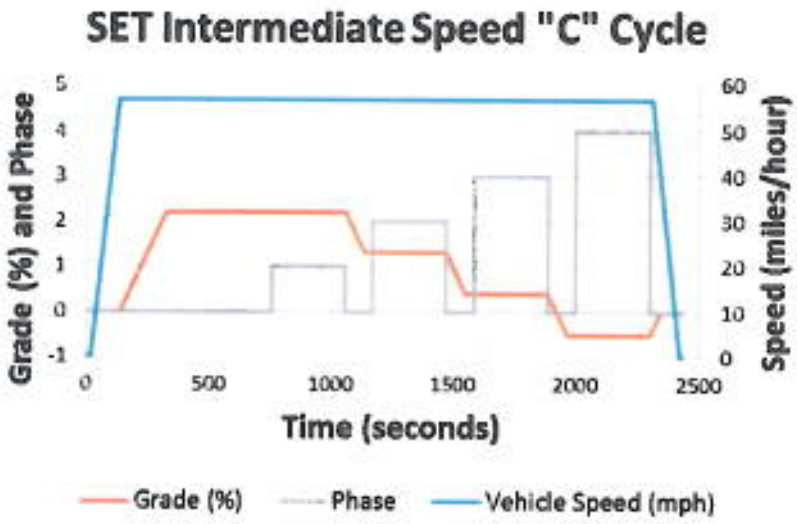

Figure 7: SET Intermediate Speed "C" Cycle speed, grade and phase vs. time

2.5 Vehicle Test Site and Emission Measurements

The chassis dynamometer used for this study is located at the EPA's National Vehicle & Fuels Emissions Laboratory in Ann Arbor, Michigan. The test site features are shown in Figure 8. Table 4 provides information on the test site equipment. The emissions measured include total hydrocarbons (THC), methane (CH_4), nonmethane hydrocarbon (NMHC), carbon monoxide (CO), oxides of nitrogen (NO_X), and particulate matter (PM as PM_{10}).[1] The emission measurement system for both gaseous and PM based pollutants is based on the Horiba MEXA-ONE platform and is compliant with the requirements in 40 CFR part 1066. The particulate matter weighroom is compliant with 40 CFR 1065.190, including temperature and dewpoint control. The PM weighroom was designed to be compliant as a Class 6 cleanroom or better and meets all of the ambient requirements described in 40 CFR part 1065. The Mettler-Toledo microbalance is compliant with the requirements in 40 CFR 1065.290. The microbalance calibration is NIST traceable as required in 40 CFR part 1065. The weighroom and microbalance provide the ability to accurately measure PM mass gain down to the 1 ug level. The system as a whole can measure PM mass emission rates as low 0.001 g/hp-hr and as high as 2 g/hp-hr.

EPA also utilized an AVL Model 483 MicroSoot Sensor to collect continuous soot data on Glider #2 for a subset of the testing. That data is not presented in this test report.

[1] No attempt was made to measure crankcase emissions from the glider vehicles. However, the distinctive odor of blowby exhaust in the test cell during testing of both glider vehicles (compared to testing other vehicles) indicates that that crankcase emissions could be high.

Figure 8: Chassis Dynamometer Overview

Table 4: Test site equipment

Features and Specifications	
4WD Chassis Dynamometer	Type: AIP-ECDM 72H-4WD Operating Speed Range: 0 – 100 mph (0 – 160 km/h) Max Axle Weight of the test vehicle: 44,000 lb (20000 kg) Inertia simulation of up to 80,000 lb (36500 kg)
Fuel	Diesel, Electric, Gasoline & Ethanol Blends
Emissions Sampling	Continuous Gaseous: Raw and Diluted simultaneous Batch: Gaseous Bag
Emission Analyzers	MEXA-ONE platform, Continuous: CO(L), CO(H), CO_2, O_2, THC, CH_4, NO/NOx Batch: CO(L), CO_2(L), THC, CH_4, NO/NOx, N_2O
Dilution Tunnel	Heated 12 inch (30.5cm) and 18 inch (45.7cm) diameter tunnel, 4 Critical Flow Venturis allow flow combinations from 19.8 to 116.1 m^3/min (700 to 4100 scfm). Active tailpipe pressure control
Road Speed Fan	70" x 70" road speed modulated vehicle cooling fan
Particulate	Up to 4 phases sampled in triplicate with secondary dilution available, mass determined with Mettler-Toledo microbalance.
Research Focus	On road heavy-duty and medium-duty vehicles above 20,000 pounds GVWR
CFR scope	40 CFR Part 86 & 1066 define the heavy-duty vehicle test procedures.

There were several verification and maintenance activities conducted in the test site to maintain quality assurance. All analyzer checks were performed according to 40 CFR part 1066 specifications. The activities included, but were not limited to, the following:

- Daily: Cell preparation checks ran included bag leak checks, sample line leak checks and analyzer zero and span checks.
- Weekly: Dynamometer coastdowns at 20,000 lb and 80,000 lb for MAHA 4WD dynamometer, Dynamometer Parasitic Losses Verification, Gravimetric Propane Injection for THC, Sample Analysis Correlations for bag checks on CO, CO_2, CH_4, NO_x emissions.
- Every 35 days: CH_4 Gas Chromatography column efficiency check, NOx converter check, chemiluminescent detector CO_2 + H_2O Quench Check, and gas analyzer linearity checks per 40 CFR part 1066.
- Typically, annually: Flame ionization detector (FID) O_2 inference check, FID response factor check, nondispersive infrared (NDIR) analyzer interference checks, and emissions sampling unit (ESU) leak check.

3. Emissions Results

3.1 Criteria Pollutants

The average emission results of the individual vehicles tested over the UDDS, WHVC, and Super Cycle are found in the following tables for NOx, NMHC, and CO. The other gaseous emissions such as THC, CH_4, and CO_2 are found in Appendices A, B and C.

The UDDS cycle began with a cold start. The testing sequence included an initial cold start UDDS, then a 20-minute soak followed by another UDDS, a 20-minute soak and UDDS followed by 45 minutes of idle. The emission results for testing at 60,000 pounds and 80,000 pounds for both glider vehicles are shown in Table 5. Glider #1, a 2016 MY Peterbilt 389 sleeper cab tractor, values only include the results from the tests after the check engine light issue was fixed. The results represent an average emissions of the tests performed for a given vehicle and configuration. See Appendix A for additional emissions results, including the results from the individual tests and the results from Glider #1 with the check engine light on.

Table 5: UDDS Results from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

UDDS		NO_x			Non-Methane Hydrocarbons (NMHC)			Carbon Monoxide (CO)		
Vehicle Test Weight (lbs)	Vehicle	Cold UDDS (g/mi)	Inter. UDDS (g/mi)	Hot UDDS (g/mi)	Cold UDDS (g/mi)	Inter. UDDS (g/mi)	Hot UDDS (g/mi)	Cold UDDS (g/mi)	Inter. UDDS (g/mi)	Hot UDDS (g/mi)
60,000	Glider #1	27.80	20.24	20.02	0.427	0.437	0.454	13.59	10.91	10.76
	Glider #2	32.42	25.01	23.55	0.613	0.388	0.397	12.32	11.16	10.85
80,000	Glider #1	36.18	27.66	27.04	0.426	0.429	0.436	17.50	15.78	14.86
	Glider #2	40.26	33.50	32.01	0.241	0.063	0.073	15.47	15.13	15.16

For the WHVC, the first cycle was a warmup and emissions were not measured. The average results for the hot start cycle are shown in Table 6. See Appendix B for additional emission results.

Table 6: WHVC Results from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

World Harmonized Vehicle Cycle		NOx	NMHC	CO
Vehicle Test Weight (lbs)	Vehicle	WHVC (g/mi)	WHVC (g/mi)	WHVC (g/mi)
60,000	Glider #1	16.81	0.386	9.24
	Glider #2	20.15	0.290	8.96
80,000	Glider #1	23.43	0.343	13.92
	Glider #2	26.73	0.308	11.86

The Super Cycle provided information across more driving conditions as it contains five ARB Heavy Duty Transient Cycles (HHDDT), a ten-minute idle period followed by 55 mph and 65 mph cruise periods with 0.5 mph/sec acceleration and deceleration rates. The results are shown in Table 7 for 60,000 lb and 80,000 lb loads respectively for both glider vehicles. See Appendix C for additional emission results.

Table 7: Super Cycle Results from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

Super Cycle		NO_x			Non-Methane Hydrocarbons (NMHC)			Carbon Monoxide (CO)		
Vehicle Test Weight (lbs)	Vehicle	ARB Transient 1 (g/mi)	ARB Transient 2 (g/mi)	55/65 Cruise (g/mi)	ARB Transient 1 (g/mi)	ARB Transient 2 (g/mi)	55/65 Cruise (g/mi)	ARB Transient 1 (g/mi)	ARB Transient 2 (g/mi)	55/65 Cruise (g/mi)
60,000	Glider #1	22.26	22.28	13.55	0.705	0.759	0.209	16.68	16.25	1.55
	Glider #2	24.94	24.92	16.64	0.603	0.620	0.157	15.61	15.48	1.41
80,000	Glider #1	29.14	28.68	25.22	0.715	0.710	0.202	21.79	21.10	2.64
	Glider #2	32.57	32.69	28.62	0.563	0.607	0.180	18.07	18.57	2.42

3.2 Particulate Matter (PM)

Particulate matter emissions were measured in triplicate to provide replicate samples for analysis. The glider vehicles emitted significantly more particulate matter than the typical heavy-duty diesel vehicles tested in the laboratory. Therefore, using our typical dilution rates and filter face velocity settings, the filters were overloaded with particulate matter during our initial testing with Glider #1. This caused a PM equipment alarm during phase 2 of the Super Cycle and therefore phases 3 and 4 were not sampled. A picture of the filters is show in Figure 9. Several iterations were performed with different filter face velocity and dilution ratio settings to address

the issue. In the end, the filter face velocity was decreased from 100 cm/s to 65 cm/s and a secondary dilution flow was added at 4:1.

Glider #1 – Super Cycle Test – 05OCT2017

Figure 9: PM Filters from Glider #1 testing over the Super Cycle Test[2]

The PM results for each of the test cycles at both test weights for both glider vehicles are shown in Table 8 through Table 10. Each value in the tables reflects the average of all tests for a given vehicle and configuration. The values for Glider #1 only include the emission values for the tests with the check engine light issue fixed. See Appendix A, B, and C for the results from the individual tests, including the Glider #1 tests before the check engine light issue was resolved.

Table 8: UDDS PM Emissions from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

UDDS		Particulate Matter		
Vehicle Test Weight (lbs)	Vehicle	Cold UDDS (mg/mi)	Inter. UDDS (mg/mi)	Hot UDDS (mg/mi)
60,000	Glider #1	500	567	602
	Glider #2	349	371	370
80,000	Glider #1	742	778	737
	Glider #2	451	445	434

[2] A1: Phase 1, hot start ARB Transient cycle; A2: Phase 2, four hot running ARB Transient cycles; A3: 10 minutes of measured idle; A4: 55/65 mph cruise. The PM sampling equipment shut down at phase 2 so filters A3 and A4 were not collecting PM.

Table 9: WHVC PM Emissions from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

World Harmonized Vehicle Cycle		Particulate Matter
Vehicle Test Weight (lbs)	Vehicle	WHVC (mg/mi)
60,000	Glider #1	560
	Glider #2	349
80,000	Glider #1	745
	Glider #2	426

Table 10: Super Cycle PM Emissions from the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

Super Cycle		Particulate Matter		
Vehicle Test Weight (lbs)	Vehicle	ARB Transient 1 (mg/mi)	ARB Transient 2 (mg/mi)	55/65 Cruise (mg/mi)
60,000	Glider #1	1028	997	177
	Glider #2	653	677	78
80,000	Glider #1	1340	1288	169
	Glider #2	701	705	90

3.3 Conversion of Distance Specific Emissions to Engine Work Specific Emissions

NOx, PM, CO, and HC emissions from highway heavy-duty diesel vehicles are controlled through EPA emission standards based on engine dynamometer testing using engine test cycles. There are various ways to estimate engine work from vehicle testing. The most common is to use engine reported speed and torque to calculate power. This methodology works well for modern engines where the engine's reference torque is known. Since the reference torque was not known for this engine, the engine work was estimated by using the chassis dynamometer target coefficients and the simulated vehicle mass, along with estimates for driveline efficiency.

To calculate the axle power, a modified version of Equation 1 in 40 CFR 1066.210 was used as shown in Equation A below.[3] This equation was modified in two ways. The first was multiplying the equation by vehicle speed to calculated power instead of force. The second

[3] See https://ecfr.io/Title-40/se40.37.1066_1210 for the description of the equation and units.

modification was removing the road grade terms from the equation since none of the cycles tested included road grade.

$$P_{wheel,i} = \left(A + B \cdot v_i + C \cdot v_i^2 + M_e \cdot \frac{v_i - v_{i-1}}{t_i - t_{i-1}} \right) \cdot v_i \text{, Eq. A}$$

Equation B was to used calculate engine power from wheel power. For this equation the axle and transmission efficiencies were estimated to be 94 percent. These values were based on the 2018 baseline data from the Heavy-Duty Greenhouse Gas and Fuel Efficiency Standards - Phase 2 rule.

$$P_{engine,i} = \frac{P_{wheel,i}}{0.94^2} \text{, Eq. B}$$

All of the points where engine power was below zero were set to zero before the power was integrated to calculate work. This was done to be consistent with how work specific emissions are calculated in 40 CFR part 1065. Finally, all the tests and phases where the vehicle, configuration, and vehicle speed trace were the same, were averaged together. This was done because the only source of variation for this analysis is the slight changes in driven vehicle speed from test to test. The coefficient of variation was typically below 2 percent for the tests, which is below other sources of error that could influence this analysis to calculate engine work from chassis dynamometer tests. Table 11 contains a summary of the conversion rates for the glider vehicles.

Table 11: Summary of vehicle miles per engine horsepower-hour

Glider Vehicle	Test Weight (pounds)	WHVC Phase 1	HD UDDS Phase 1, 2 and 3	Super Cycle Phase 1 and 2	Super Cycle Phase 4
		miles / (hp-hr)			
#1	60,000	0.321	0.293	0.271	0.362
#1	80,000	0.224	0.201	0.189	0.228
#2	60,000	0.320	0.286	0.266	0.362
#2	80,000	0.219	0.198	0.188	0.229

This analysis estimates the engine work from chassis dynamometer testing and does not take into account a number of additional sources of load on the engine. Two of these sources are the engine accessory load and the additional power from when the engine is idling at a higher speed during warm-up.

3.4 Simulated HD Federal Test Procedure and Supplemental Emission Test Results

The on-highway heavy-duty engine emission standards are in grams per horsepower-hour based on engine test cycles. The current exhaust emissions standards for heavy-duty engines are 0.2 g/hp-hr for NOx, 0.01 g/hp-hr for PM, 15.5 g/hp-hr for CO, and 0.14 g/hp-hr for NMHC.[4] The emission standards are evaluated over a transient cycle, the Heavy-Duty Federal Test Procedure (HD Engine FTP) cycle, and a steady-state cycle.

To conduct a rough comparison of the emissions over a transient cycle to the engine emissions standards, we calculated the estimated NOx, PM, CO, and NMHC emissions in grams per horsepower-hour using the conversion rates shown in Table 11. The comparison was limited to the chassis test results from the UDDS cycle because this is the vehicle cycle that was used originally to create the HD Engine FTP cycle. As shown in Table 12 and Table 13, the estimated NOx and PM emissions results are significantly higher than the model year 2010 and later on-highway heavy-duty diesel emission standards, and are more typical of the emission results expected from an on-highway heavy-duty diesel engine built between model years 1998 and 2002.

Table 12: Estimated Grams of NOx and NMHC per Horsepower-Hour Results over the UDDS Cycle for 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

UDDS		NO_x			Non-Methane Hydrocarbons (NMHC)		
Vehicle Test Weight (lbs)	Vehicle	Cold UDDS (g/hp-hr)	Inter. UDDS (g/hp-hr)	Hot UDDS (g/hp-hr)	Cold UDDS (g/hp-hr)	Inter. UDDS (g/hp-hr)	Hot UDDS (g/hp-hr)
60,000	Glider #1	8.15	5.93	5.87	0.125	0.128	0.133
	Glider #2	9.27	7.15	6.74	0.175	0.111	0.114
80,000	Glider #1	7.27	5.56	5.44	0.086	0.086	0.088
	Glider #2	7.97	6.63	6.34	0.048	0.013	0.015

[4] See 40 CFR 86.007-11 for emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles.

Table 13: Estimated Grams of CO and PM per Horsepower-Hour Results over the UDDS Cycle for 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2

UDDS		Carbon Monoxide (CO)			Particulate Matter		
Vehicle Test Weight (lbs)	Vehicle	Cold UDDS (g/hp-hr)	Inter. UDDS (g/hp-hr)	Hot UDDS (g/hp-hr)	Cold UDDS (g/hp-hr)	Inter. UDDS (g/hp-hr)	Hot UDDS (g/hp-hr)
60,000	Glider #1	3.98	3.20	3.15	0.146	0.166	0.176
	Glider #2	3.52	3.19	3.10	0.100	0.106	0.106
80,000	Glider #1	3.52	3.17	2.99	0.217	0.228	0.216
	Glider #2	3.06	3.00	3.00	0.089	0.088	0.086

Chassis testing of Glider #2 was also conducted to simulate the engine-based steady state cycle, the Supplemental Emission Test (SET), as discussed in Section 2.4. The simulation was conducted by running a series of steady-state cycles with varying grade using the mass and road load coefficients of the 80,000 pound vehicle. The engine power for each SET test point was determined using the method defined in Section 3.3 and the corresponding speed and torque values are shown in Table 14.

Table 14: Engine Speed and Torque at SET Test Points

Test Point	Engine Speed (rpm)	Engine Torque (Nm)
A100	1262	2302
A75	1262	1783
A50	1263	1251
A25	1262	716
B100	1440	2371
B75	1440	1831
B50	1440	1289
B25	1440	732
C100	1610	2255
C75	1648	1764
C50	1648	1249
C25	1648	722
Idle	600	0

The overall emission test results from the SET are shown in Table 15. For the "idle" test point of the SET, the idle results from the 3rd phase of the Super Cycle were used. The NO_x emissions are consistent with the results of the UDDS but the CO and PM emissions are measurably lower. This is not surprising since the transient CO and PM emissions are likely a result of poor air fuel ratio control and mixing during transient operation when compared to the steady-state operation that the SET captures.

Table 15: Glider #2 Simulated SET Results

Test Point	THC (g/hp-hr)	CO (g/hp-hr)	NOx (g/hp-hr)	N2O (g/hp-hr)	CH4 (g/hp-hr)	NMHC (g/hp-hr)	PM (g/hp-hr)
A100	0.0382	1.3560	6.817	0.00166	0	0.0399	0.028
A75	0.0343	0.8307	6.540	0.00177	0.00030	0.0355	0.016
A50	0.0320	0.5130	6.369	0.00205	0	0.0338	0.017
A25	0.0578	0.3805	6.001	0.00285	0	0.0607	0.019
B100	0.0375	0.7036	6.996	0.00180	0	0.0395	0.027
B75	0.0359	0.4510	7.379	0.00193	0.0002	0.0380	0.017
B50	0.0333	0.3316	6.880	0.00215	0	0.0351	0.015
B25	0.0569	0.3850	5.733	0.00296	0	0.0599	0.024
C100	0.0361	0.3926	6.020	0.00211	0	0.0385	0.040
C75	0.0394	0.2950	7.236	0.00226	0	0.0420	0.028
C50	0.0405	0.2648	6.594	0.00254	0	0.0427	0.024
C25	0.0635	0.3939	5.997	0.00340	0	0.0666	0.031
Idle*	5.002	23.72	113.5	0.0690	0.018	5.0127	0.175
Weighted 40 CFR 86.1362	0.0446	0.6182	6.73	0.00219	7.53E-05	0.0467	0.025
*Idle emissions are in (grams/hr)							

4. Comparison to other HD Vehicle Emission Performance

The emission results from the glider vehicles were compared to two other recent model year tractors. The vehicle specifics of these two other tractors are listed below.

- The day cab tractor tested was a 2015 MY International Day Cab with over 10,000 miles. The vehicle contained a 2015 MY Cummins ISX 600 HP engine, an Eaton 13 speed automated manual transmission, and a 3.55 rear axle ratio.
- The sleeper cab tractor tested was a 2014 MY Freightliner Cascadia with 362,652 miles. The vehicle contained a 2014 MY Detroit Diesel DD-15 505 HP engine, an Eaton 10 speed manual transmission, and a 3.55 rear axle ratio.

A principle difference between these vehicles and the 2016 MY Peterbilt 389 and 2017 MY Peterbilt 579 glider vehicles are the engines. The glider vehicles use a rebuilt engine that was originally manufactured in the 1998-2002 timeframe, while the two comparison vehicles have engines certified to the 2014 MY and 2015 MY EPA emissions standards and utilize cooled exhaust gas recirculation (EGR), diesel particulate filters, and selective catalytic reduction (SCR) systems.

All of the tractors were tested in the same HD chassis dynamometer cell as the glider vehicles. The target road load coefficients for the International day cab matched the glider vehicles when tested at 60,000 pounds. The target road loads of the Freightliner sleeper cab matched the glider vehicles when tested at 80,000 pounds. This means that the comparisons reflect differences observed for the drivetrain (engine, transmission, and axle) of the vehicles, but do not account for differences associated with the vehicles' aerodynamics or tire performance. The road load coefficients for both of these vehicles are show in Table 16.

Table 16: Road Load Coefficients

	Target Coefficients			Set Coefficients		
Configuration	A (lbf)	B (lbf/mph)	C (lbf/mph^2)	A (lbf)	B (lbf/mph)	C (lbf/mph^2)
2015 MY International Day Cab, 60k Test Weight	345.090	0.0000	0.15380	75.100	-0.7408	0.143200
2014 MY Freightliner Sleeper Cab, 80k Test Weight	446.350	7.76060	0.14780	294.170	6.0668	0.139900

As shown in the following figures, we compared the emission rates from the gliders to that of the comparable tractor configuration. The glider results in the figures represent the average of all of the tests for a given vehicle configuration, excluding the tests with the MIL on for Glider #1.[5] Figure 10 through Figure 13 compare the 2016 MY and 2017 MY Peterbilt Gliders at 60,000 pound test weight to the 2015 MY International Day Cab at the same test weight and road load coefficients over the Super Cycle. Figure 14 through Figure 17 show the emission rate differences between the 2016 MY and 2017 MY Peterbilt Gliders at 80,000 pound test weight to the 2014 MY Freightliner Sleeper Cab at the same test weight and road load coefficients over the ARB Transient Cycle.

The NOx, CO, THC, and PM emissions from the glider vehicles were significantly higher than the newer model year tractors over all cycles.

[5] See Appendix A, B, and C for the emission rates before and after the repair.

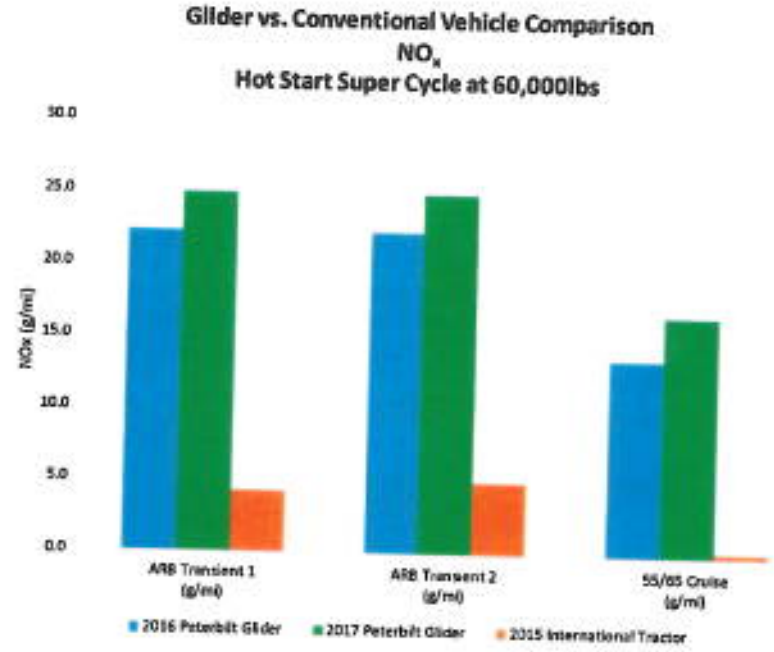

Figure 10: NOx Emissions Comparison of 2015 MY Day Cab to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the Super Cycle

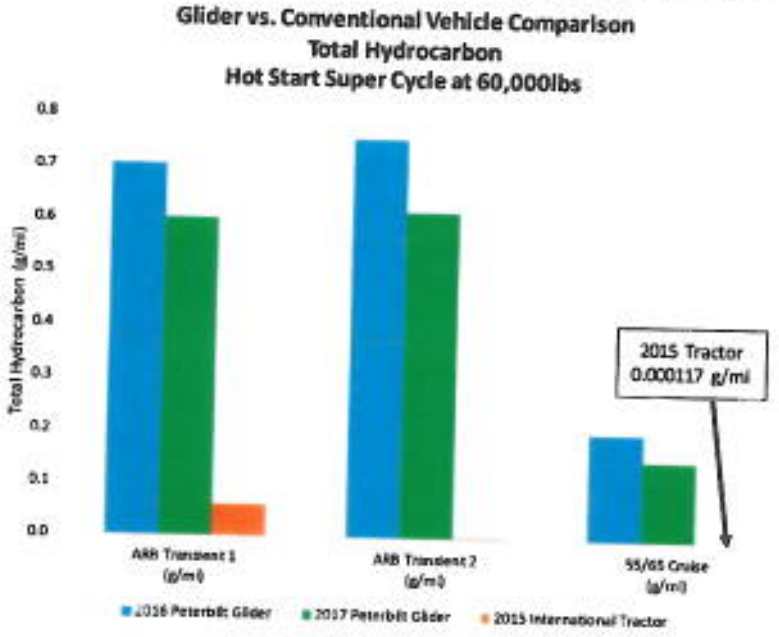

Figure 11: THC Emissions Comparison of 2015 MY International Tractor to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the Super Cycle

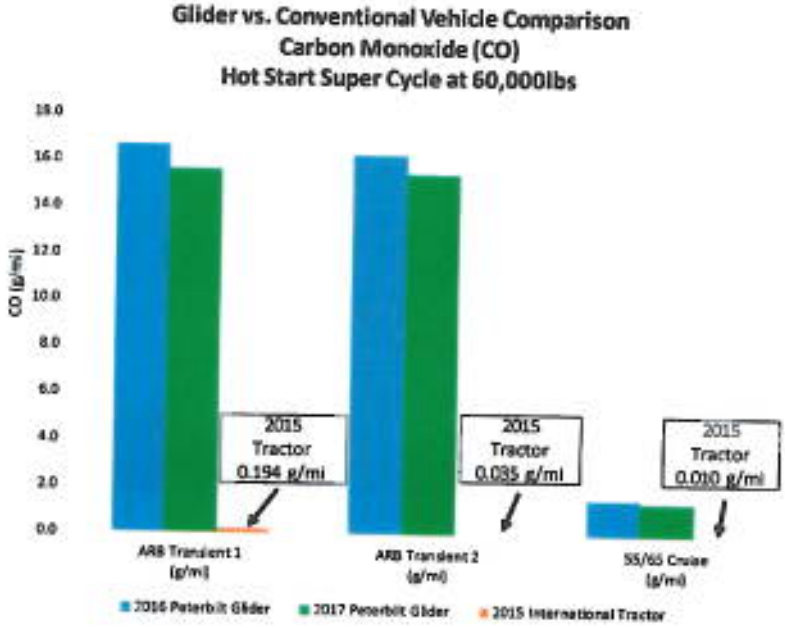

Figure 12: CO Emissions Comparison of 2015 MY Day Cab to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the Super Cycle

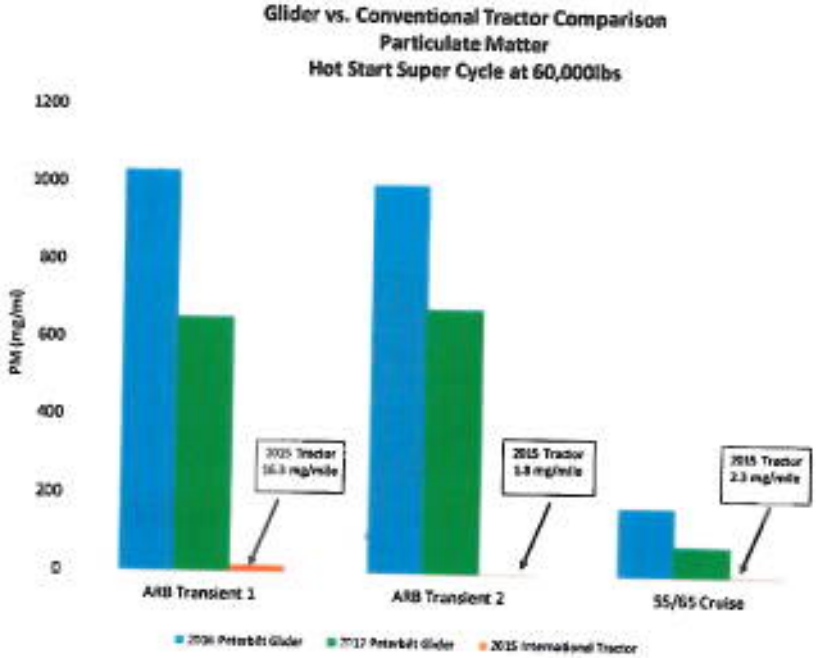

Figure 13: PM Emissions Comparison of 2015 MY Day Cab to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the Super Cycle

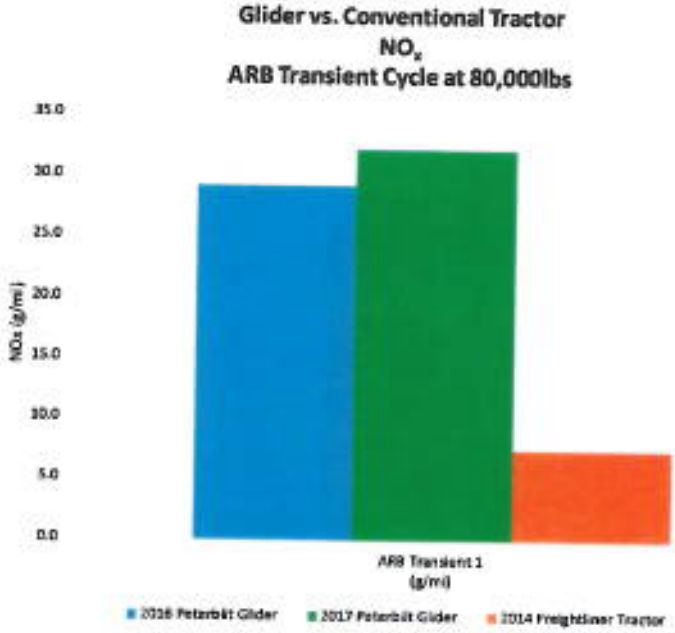

Figure 14: NOx Emissions Comparison of 2014 MY Freightliner to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the ARB Transient Cycle

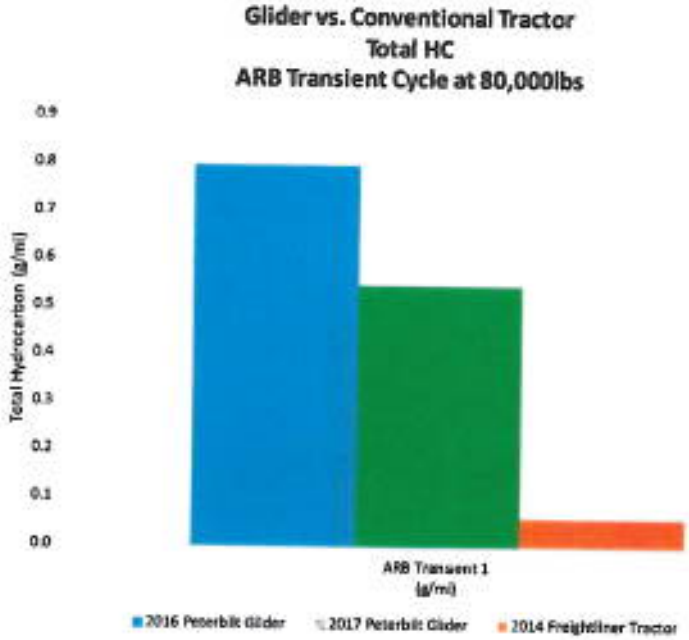

Figure 15: HC Emissions Comparison of 2014 MY Freightliner to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the ARB Transient Cycle

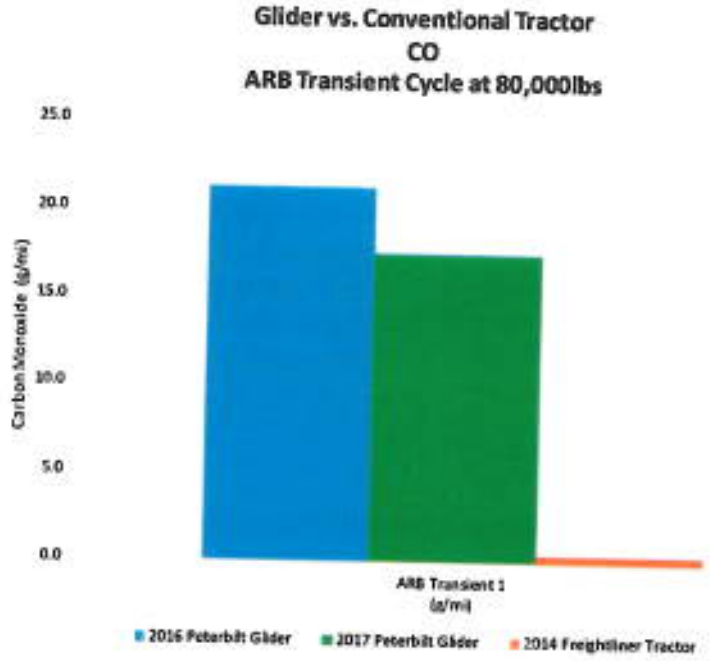

Figure 16: CO Emissions Comparison of 2014 MY Freightliner to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the ARB Transient Cycle

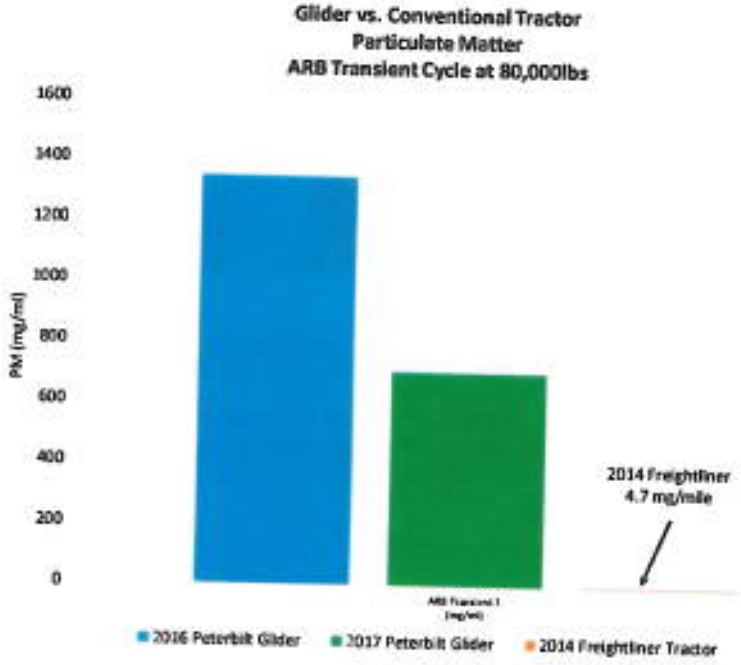

Figure 17: PM Emissions Comparison of 2014 MY Freightliner to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the ARB Transient Cycle

We also compared the CO_2 emissions of the Peterbilt 389 and Peterbilt 579 glider vehicles to the International and Freightliner conventional tractors. CO_2 emissions are directly proportional to the road load of the vehicle. Because we did not measure the actual road load of the vehicles, we used the same target road load coefficients in the two sets of comparisons (at 60,000 and 80,000 pounds). Therefore, this comparison only evaluates the performance of the powertrain and may not be representative of the difference in CO_2 emission that these vehicles would experience in-use. Figure 18 and Figure 19 show comparisons of the powertrain performance. In all cases, the CO_2 emissions were lower in the glider powertrains. This is not unexpected given the known trade-off between NOx and CO_2 emissions with respect to injection timing and similar engine calibration techniques and the relatively higher NOx emissions for the 2016 MY Peterbilt 389 and 2017 MY Peterbilt 579 glider vehicles shown in the previous tables and figures.

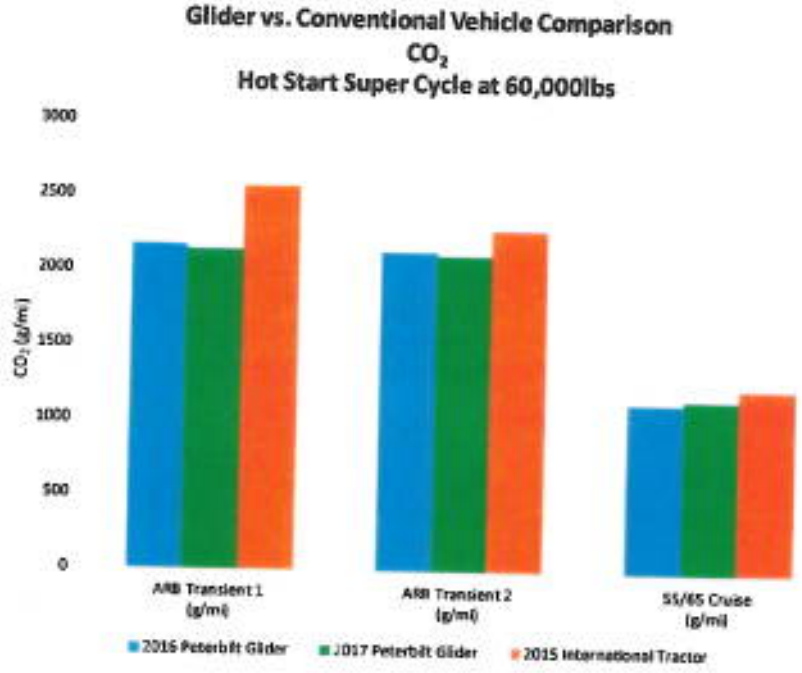

Figure 18: CO_2 Emissions Comparison of 2015 MY International to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the Super Cycle

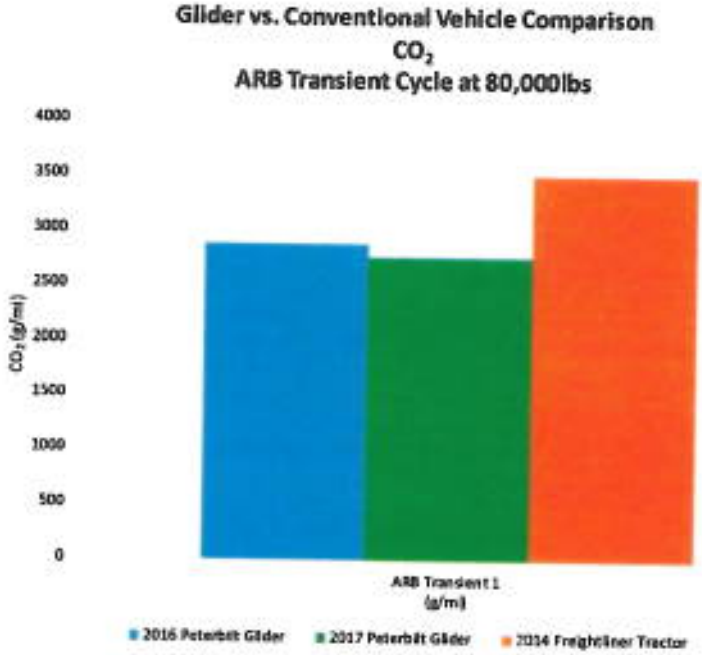

Figure 19: CO_2 Emissions Comparison of 2014 MY Freightliner to the 2016 MY Peterbilt 389 Glider #1 and 2017 MY Peterbilt 579 Glider #2 over the ARB Transient Cycle

Glider #1 2016 MY Peterbilt 389

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC			NMHC		
				Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)	Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)
Cold Start UDDS	Glider #1 60,000 lb Test Wt.	1	10/6	0.630	0.664	0.487	0.561	0.606	0.491
		2	10/10	0.551	0.608	0.501	0.476	0.590	0.508
		3*	10/16	0.402	0.417	0.415	0.407	0.422	0.421
		4*	10/17	0.443	0.447	0.481	0.447	0.452	0.488
Cold Start UDDS	Glider #1 80,000 lb Test Wt.	1	10/12	0.569	0.527	0.427	0.545	0.509	0.435
		2	10/13	0.399	0.411	0.379	0.407	0.421	0.389
		3*	10/18	0.437	0.431	0.414	0.445	0.439	0.424
		4*	10/19	0.400	0.413	0.438	0.407	0.420	0.448

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CH_4			CO		
				Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)	Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)
Cold Start UDDS	Glider #1 60,000 lb Test Wt.	1	10/6	0.051	0.045	0.001	36.4	28.5	16.2
		2	10/10	0.050	0.022	0.000	36.0	23.8	14.2
		3*	10/16	0.000	0.000	0.000	13.9	11.1	10.3
		4*	10/17	0.000	0.000	0.000	13.3	10.7	11.2
Cold Start UDDS	Glider #1 80,000 lb Test Wt.	1	10/12	0.034	0.028	0.000	31.1	30.6	16.7
		2	10/13	0.002	0.000	0.000	19.7	16.1	17.4
		3*	10/18	0.000	0.000	0.000	16.1	15.2	15.4
		4*	10/19	0.000	0.000	0.000	18.9	16.3	14.4

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	NO_x			N_2O		
				Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)	Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)
Cold Start UDDS	Glider #1 60,000 lb Test Wt.	1	10/6	33.4	31.6	24.2	0.016	0.014	0.014
		2	10/10	32.3	31.5	20.6	0.016	0.014	0.013
		3*	10/16	28.4	20.0	20.3	0.019	0.017	0.014
		4*	10/17	27.2	20.5	19.8	0.018	0.016	0.015
Cold Start UDDS	Glider #1 80,000 lb Test Wt.	1	10/12	42.5	35.1	28.1	0.020	0.021	0.018
		2	10/13	36.5	28.3	28.2	0.017	0.016	0.015
		3*	10/18	36.2	27.7	27.2	0.020	0.017	0.017
		4*	10/19	36.2	27.7	26.9	0.019	0.017	0.016

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CO_2			Fuel Economy		
				Glider #1 Cold UDDS (g/mi)	Glider #1 Inter. UDDS (g/mi)	Glider #1 Hot UDDS (g/mi)	Glider #1 Cold UDDS (mpg)	Glider #1 Inter. UDDS (mpg)	Glider #1 Hot UDDS (mpg)
Cold Start UDDS	Glider #1 60,000 lb Test Wt.	1	10/6	2002	1838	1807	4.94	5.40	5.55
		2	10/10	2066	1881	1854	4.79	5.30	5.42
		3*	10/16	1990	1818	1779	5.05	5.54	5.67
		4*	10/17	1991	1804	1816	5.05	5.58	5.54
Cold Start UDDS	Glider #1 80,000 lb Test Wt.	1	10/12	2595	2493	2447	3.85	4.00	4.11
		2	10/13	2664	2425	2413	3.77	4.15	4.17
		3*	10/18	2602	2465	2449	3.87	4.09	4.11
		4*	10/19	2677	2478	2432	3.76	4.06	4.14

* Check Engine Light issue resolved prior to this test

Glider #2 2017 MY Peterbilt 579

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC			NMHC		
				Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)	Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)
Cold Start UDDS	Glider #2 60,000 lb Test	1	11/3	0.603	0.363	0.377	0.605	0.370	0.384
		2	11/6	0.621	0.401	0.405	0.621	0.406	0.411
Cold Start UDDS	Glider #2 80,000 lb Test	1	11/7	0.236	0.056	0.064	0.241	0.063	0.073

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CH_4			CO		
				Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)	Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)
Cold Start UDDS	Glider #2 60,000 lb Test	1	11/3	0.004	0.000	0.000	11.4	11.1	9.4
		2	11/6	0.005	0.000	0.000	13.2	11.2	12.3
Cold Start UDDS	Glider #2 80,000 lb Test	1	11/7	0.006	0.000	0.000	15.5	15.1	15.2

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	NO_x			N_2O		
				Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)	Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)
Cold Start UDDS	Glider #2 60,000 lb Test	1	11/3	32.8	25.3	23.5	0.018	0.022	0.013
		2	11/6	32.0	24.7	23.6	0.014	0.010	0.010
Cold Start UDDS	Glider #2 80,000 lb Test	1	11/7	40.3	33.5	32.0	0.013	0.010	0.010

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CO_2			Fuel Economy		
				Glider #2 Cold UDDS (g/mi)	Glider #2 Inter. UDDS (g/mi)	Glider #2 Hot UDDS (g/mi)	Glider #2 Cold UDDS (mpg)	Glider #2 Inter. UDDS (mpg)	Glider #2 Hot UDDS (mpg)
Cold Start UDDS	Glider #2 60,000 lb Test	1	11/3	1952	1868	1801	5.13	5.39	5.60
		2	11/6	2035	1855	1856	4.95	5.43	5.42
Cold Start UDDS	Glider #2 80,000 lb Test	1	11/7	2640	2493	2460	3.82	4.04	4.10

PM Results

The values in the table represent an average of the PM collected on three filters. The PM emission data was not collected for all tests due to power issues in the laboratory during the time of testing which affected the PM sampler. Those tests for which the PM sample system was not operating are indicated with a "N/A".

Test Type	Vehicle Test Weight (lbs)	Test Number	Date	PM		
				Cold UDDS (mg/mi)	Inter. UDDS (mg/mi)	Hot UDDS (mg/mi)
Cold Start UDDS	Glider #1 60,000 lb	1	10/6	1472	1491	813
		2	10/10	N/A	N/A	N/A
		3*	10/16	479	580	542
		4*	10/17	521	554	662
	Glider #2 60,000 lb	1	11/3	323	363	310
		2	11/6	375	379	431
		3	11/14	N/A	N/A	N/A
Cold Start UDDS	Glider#1 80,000 lb	1	10/12	1419	1622	916
		2*	10/13	706	706	674
		3*	10/18	N/A	N/A	N/A
		4*	10/19	778	849	800
	Glider #2 80,000 lb	1	11/7	490	473	466
		2	11/8	413	433	402
		3	11/13	450	427	432

* Check Engine Light issue resolved prior to these tests

Glider #1 2016 MY Peterbilt 389

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC (g/mi)	NMOG (g/mi)	NMHC (g/mi)	CH4 (g/mi)	CO (g/mi)	Nox (g/mi)	N2O (g/mi)	CO2 (g/mi)	Fuel Economy (mpg)
Hot Start WHVC	Glider #1 60,000 lb Test Wt.	1	10/5	0.431	0.435	0.435	0.000	8.65	17.3	0.0123	1505	6.69
		2	10/6	0.391	0.397	0.397	0.000	10.21	16.9	0.0109	1561	6.45
		3	10/10	0.410	0.397	0.397	0.004	16.82	25.4	0.0099	1506	6.63
		4*	10/16	0.373	0.377	0.377	0.000	8.94	16.8	0.0128	1560	6.46
		5*	10/17	0.392	0.395	0.395	0.000	9.55	16.8	0.0130	1577	6.38
Hot Start WHVC	Glider #1 80,000 lb Test	1	10/11	0.332	0.336	0.336	0.000	13.14	24.2	0.0128	2105	4.78
		2*	10/13	0.347	0.350	0.350	0.000	14.70	22.7	0.0145	2132	4.72

Glider #2 2017 MY Peterbilt 579

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC (g/mi)	NMOG (g/mi)	NMHC (g/mi)	CH4 (g/mi)	CO (g/mi)	Nox (g/mi)	N2O (g/mi)	CO2 (g/mi)	Fuel Economy (mpg)
Hot Start WHVC	Glider #2 60,000 lb Test	1	11/3	0.285	0.288	0.288	0.000	8.79	20.0	0.0068	1553	6.49
		2	11/6	0.289	0.291	0.291	0.000	9.12	20.2	0.0076	1552	6.49
Hot Start WHVC	Glider #2 80,000 lb Test	1	11/7	0.298	0.300	0.300	0.000	12.85	26.4	0.0082	2157	4.67
		2	11/8	0.313	0.316	0.316	0.000	10.87	27.1	0.0101	2152	4.69

PM Results

The values in the table represent an average of the PM collected on three filters. The PM emission data was not collected for all tests due to power issues in the laboratory during the time of testing which affected the PM sampler. Those tests for which the PM sample system was not operating are indicated with a "N/A".

Test Type	Vehicle Test Weight (lbs)	Test Number	Date	PM WHVC (mg/mi)
Hot Start WHVC	Glider #1 60,000 lb	1	10/5	543
		2	10/6	622
		3	10/10	N/A
		4*	10/16	530
		5*	10/17	591
	Glider #2 60,000 lb	1	11/3	367
		2	11/6	331
Hot Start WHVC	Glider #1 80,000 lb	1	10/11	627
		2*	10/13	745
Hot Start WHVC	Glider #2 80,000 lb	1	11/7	433
		2	11/8	419

* Check Engine Light issue resolved prior to these tests

Glider #1 2016 MY Peterbilt 389

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC			NMHC		
				Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)	Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)
Hot Start SC	Glider #1 60,000 lb Test Wt.	1	10/5	0.822	0.753	0.207	0.823	0.756	0.214
		2	10/6	0.611	0.723	0.201	0.611	0.726	0.208
		3	10/10	0.794	0.740	0.201	0.765	0.742	0.208
		4*	10/16	0.683	0.753	0.197	0.682	0.757	0.204
		5*	10/17	0.727	0.758	0.207	0.727	0.762	0.214
Hot Start SC	Glider #1 80,000 lb Test Wt.	1	10/11	0.608	0.648	0.168	0.609	0.653	0.178
		2	10/13	0.629	0.701	0.185	0.631	0.707	0.195
		3*	10/18	0.798	0.706	0.199	0.799	0.713	0.209

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CH_4			CO		
				Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)	Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)
Hot Start SC	Glider #1 60,000 lb Test Wt.	1	10/5	0.000	0.000	0.000	16.20	18.45	1.69
		2	10/6	0.000	0.000	0.000	20.12	21.34	1.76
		3	10/10	0.022	0.002	0.000	38.94	20.84	1.86
		4*	10/16	0.000	0.000	0.000	16.13	15.01	1.50
		5*	10/17	0.000	0.003	0.000	17.23	17.49	1.61
Hot Start SC	Glider #1 80,000 lb Test Wt.	1	10/11	0.000	0.000	0.000	22.84	24.34	2.99
		2	10/13	0.000	0.000	0.001	22.43	22.15	2.70
		3*	10/18	0.000	0.000	0.002	21.15	20.05	2.58

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	NO_x			N_2O		
				Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)	Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)
Hot Start SC	Glider #1 60,000 lb Test Wt.	1	10/5	24.4	23.8	13.3	0.016	0.014	0.005
		2	10/6	23.2	23.3	13.4	0.015	0.016	0.006
		3	10/10	35.5	26.6	13.4	0.020	0.018	0.008
		4*	10/16	22.0	22.4	13.6	0.020	0.020	0.008
		5*	10/17	22.5	22.2	13.5	0.021	0.019	0.008
Hot Start SC	Glider #1 80,000 lb Test Wt.	1	10/11	29.6	30.1	25.3	0.022	0.020	0.009
		2	10/13	29.2	28.8	25.2	0.023	0.023	0.010
		3*	10/18	29.1	28.6	25.2	0.023	0.021	0.010

* Check Engine Light issue resolved prior to this test

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CO_2			Fuel Economy		
				Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)	Glider #1 ARB Transient 1 (g/mi)	Glider #1 ARB Transient 2 (g/mi)	Glider #1 55/65 Cruise (g/mi)
Hot Start SC	Glider #1 60,000 lb Test Wt.	1	10/5	2188	2181	1121	4.59	4.60	9.05
		2	10/6	2158	2172	1141	4.64	4.61	8.90
		3	10/10	2172	2104	1139	4.55	4.76	8.90
		4*	10/16	2138	2110	1132	4.70	4.76	8.97
		5*	10/17	2200	2146	1134	4.57	4.68	8.95
Hot Start SC	Glider #1 80,000 lb Test Wt.	1	10/11	2814	2827	1750	3.57	3.55	5.80
		2	10/13	2843	2817	1757	3.53	3.57	5.77
		3*	10/18	2863	2783	1749	3.51	3.61	5.80

* Check Engine Light issue resolved prior to this test

Glider #2 2017 MY Peterbilt 579

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	Total HC			NMHC		
				Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)	Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)
Hot Start SC	Glider #2 60,000 lb Test	1	11/3	0.611	0.610	0.164	0.611	0.612	0.171
		2	11/6	0.596	0.626	0.137	0.595	0.628	0.143
Hot Start SC	Glider #2 80,000 lb Test	1	11/7	0.544	0.596	0.162	0.547	0.605	0.170
		2	11/8	0.578	0.601	0.180	0.579	0.609	0.189

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CH_4			CO		
				Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)	Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)
Hot Start SC	Glider #2 60,000 lb Test	1	11/3	0.000	0.001	0.000	15.32	16.00	1.49
		2	11/6	0.000	0.001	0.001	15.90	14.96	1.34
Hot Start SC	Glider #2 80,000 lb Test	1	11/7	0.000	0.000	0.003	17.41	18.31	2.70
		2	11/8	0.000	0.000	0.003	18.73	18.84	2.14

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	NO_x			N_2O		
				Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)	Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)
Hot Start SC	Glider #2 60,000 lb Test	1	11/3	25.0	25.0	16.4	0.014	0.013	0.005
		2	11/6	24.9	24.8	16.9	0.012	0.014	0.004
Hot Start SC	Glider #2 80,000 lb Test	1	11/7	32.1	32.7	28.6	0.015	0.013	0.005
		2	11/8	33.0	32.7	28.6	0.017	0.016	0.007

Test Type	Vehicle Number Test Weight (lbs)	Test Number	Date	CO_2			Fuel Economy		
				Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)	Glider #2 ARB Transient 1 (g/mi)	Glider #2 ARB Transient 2 (g/mi)	Glider #2 55/65 Cruise (g/mi)
Hot Start SC	Glider #2 60,000 lb Test	1	11/3	2177	2117	1171	4.62	4.75	8.67
		2	11/6	2106	2105	1146	4.77	4.78	8.86
Hot Start SC	Glider #2 80,000 lb Test	1	11/7	2755	2760	1765	3.66	3.65	5.75
		2	11/8	2861	2796	1777	3.52	3.60	5.71

PM Results

The values in the table represent an average of the PM collected on three filters. The PM emission data was not collected for all tests due to power issues in the laboratory during the time of testing which affected the PM sampler. Those tests for which the PM sample system was not operating are indicated with a "N/A".

Test Type	Vehicle Test Weight (lbs)	Test Number	Date	PM		
				ARB Transient 1 (mg/mi)	ARB Transient 2 (mg/mi)	55/65 Cruise (mg/mi)
Hot Start SC*	Glider #1 60,000 lb	1	10/5	1005	839	187
		2	10/6	1112	1127	187
		3	10/10	N/A	N/A	N/A
		4*	10/16	961	905	167
		5*	10/17	1094	1089	186
	Glider #2 60,000 lb	1	11/3	682	706	88
		2	11/6	623	648	69
Hot Start SC*	Glider #1 80,000 lb	1	10/11	N/A	N/A	N/A
		2*	10/13	1340	1288	169
		3*	10/18	N/A	N/A	N/A
	Glider #2 80,000 lb	1	11/7	652	668	83
		2	11/8	749	743	98

* Check Engine Light issue resolved prior to these tests

MEMORANDUM

TO: Christy Killman, President TTU Faculty Senate
Melissa Geist, Faculty Representative, TTU Board of Trustees
Julia Gruber, President, AAUP

FROM: Darrell Hoy, Interim Dean, College of Engineering D. Hoy

DATE: 02/16/2018

SUBJECT: Request for Your Groups to Continue to Urge President Oldham to Publically Suspend TTU Support for the Results of the Fitzgerald Study and Letter to Congresswoman Dianne Black

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On behalf of the College of Engineering, I would like to request your assistance, as elected representatives of the TTU faculty, to continue to urge President Oldham to immediately and publically suspend TTU support of the results of the Fitzgerald testing, and withdraw the letter sent to Congressman Dianne Black on June 15, 2017, which contained assertions based on the aforementioned testing. The suspension of this support and withdrawl of the letter would be temporary, pending the results of the internal and external investigation.

By not publically suspending the support for the Fitzgerald testing and the letter to Congressman Black, pending the results of the investigations, the University is effectively remaining in support of these studies by their non-response. This lack of a public response has, and is continuing to do significant damage to the reputation of this Institution and in particular, the College of Engineering.

I contend that the evidence placed into the public arena and public docket of the EPA by both Fitzgerald and TTU themselves, cast sufficient doubt that the burden of proof is now on President Oldham to show why the administration continues to lend its tacit support to the Fitzgerald testing and his letter to Dianne Black.

Furthermore, as clearly revealed in the questioning of Associate Vice-President Tom Brewer and Vice-President Bharat Soni during the Faculty Senate meeting on Jan 29, 2018 (minutes available on the faculty Senate website) that no qualified, credentialed engineering faculty member (1) oversaw the testing, (2) verified the data or calculations of the graduate student, (3) wrote or reviewed the final report submitted to Fitzgerald, or (4)

wrote or reviewed the letter submitted to Dianne Black with the farfetched, scientifically implausible claim, that remanufactured truck engines met or exceeded the performance of modern, pollution-controlled engines with regards to emissions.

Since no qualified, credentialed engineer was involved, the work performed is by definition not a scientific research study and therefore afforded the protections offered by TTU Policy 780 "Misconduct in Research". Furthermore, there is no policy that prevents the President from putting the University's support of this testing on hold, pending the results of an official investigation.

The damage already done and continuing to be done to the reputation of the University is significant, and as an institution, we cannot afford to wait weeks and months until these investigations are completed. The recent article on the front page of the New York Times (published on 15 February 2018) referred to the "engineering experts" on the Fitzgerald study. The study was, of course, not conducted by engineering experts at all, yet the damage to our College has already been done.

Since I did not start in my current position until August, 2017, after the Fitzgerald testing had been completed and the letter had been sent to Dianne Black, I first learned about this issue via a Nov. 10, 2017 article in the Washington Post. As more negative press and questions began arising in the national and local media, I became increasingly concerned as I learned more about the details of the testing and claims that had been made in the letter. On Dec. 22, 2018, in a cellphone conversation with President Oldham, I mentioned the fact that several faculty in the College had raised concerns in this regard. In a follow-up phone call the next day to his Chief of Staff, Lee Wray, I further emphasized that I did not believe that the University could defend this study. On Jan. 23, 2018, myself and Associate Dean Vahid Motevalli met with Lee Wray and Karen Lykins (Director of the Office of Communications & Marketing. During this meeting, we expressed our grave concerns about the Fitzgerald project, including the devastating five-page critique of the "flawed TTU study" that appeared in the public docket of the EPA by the Environmental Defense Fund (EPA-HQ-OAR-2014-0827) on January 5, 2018. I concluded the meeting by urging (almost begging) that the Administration immediately suspend support for the project, pending an internal investigation. In a follow-up meeting, with Chief of Staff Lee Wray on Jan. 26, 2018, he confirmed that he had delivered the message to the President, the President had considered my input, but that they also had other input supporting the study. On the following Monday, Jan. 29, 2018 the members of the Faculty Senate from the College of Engineering proposed a draft resolution to the Senate, which after modification, became the Faculty Senate Resolution that was approved by a vote of 33 to 1, and was sent to the President on Tuesday, Jan. 30, 2018. Item 2 in this Resolution stated: "Issue a letter, signed by the President, withdrawing all Tennessee Tech support from the study, pending the results of the aforementioned investigation". In his response, the President declined to issue such a letter, and based on his email yesterday, Feb. 15, 2018, addressed to "Faculty/Staff", he is maintaining that position.

I realize this memo and the facts that I have brought to light may be a "professional suicide" with regard to my position as Interim Dean. However, if that is what it takes to help force a more

active response from the University and stop the damage to the College, I do it willingly and without hesitation.

Civil and Environmental Engineering

TENNESSEE TECH

TO: Dr. Philip Oldham, President

FROM: Dr. Benjamin Mohr, Department of Civil and Environmental Engineering

DATE: January 25, 2018

SUBJECT: Withdrawal as Principal Investigator

Effective immediately, I withdraw as the Principal Investigator of the current research project funded by Fitzgerald, along with any implicit support of statements that have been publicly released by the university. While my role has been largely administrative, I can no longer be associated in any way with this research project. I had no role in (nor prior knowledge of) the dissemination of results via letter by yourself and Mr. Tom Brewer, and subsequently included in an EPA petition. I have verbally expressed my displeasure regarding the matter to Mr. Brewer and the conflict of interest this has created. I indicated that this would likely lead to "bad press" and is not consistent with the typical release of information for industry-sponsored projects. All this time, I have been reassured that the university was working on a plan to combat the negative publicity and feedback. However, I can no longer sit back and wait for a response, which I may or may not agree with.

In addition, a graduate student has been caught in the middle of this dilemma. In early January, I (along with another member of the graduate student's committee) met with Mr. Brewer and stated that we do not support the student writing a thesis. A change from a thesis to non-thesis was largely due to our concerns over placing our names on what would ultimately become a public document. As such, concerns over the handling of data and the subsequent release have been made known over the past few months.

Back to the beginning when I agreed as PI in signing the project proposal (which I reviewed, but did not write), it was my understanding that the intent of the project was to perform relative comparisons of emissions from two classes of diesel engines (having had previously conducted research regarding NO_x, SO_x, and other environmental contaminants). Other portions of the project (e.g., legal issues and economic analysis) were subcontracted to other units within Tennessee Tech. The emissions data were never intended to be used as absolutes, nor directly compared to EPA standards. Any subsequent analyses regarding engine modifications, or similar, would then be conducted by qualified individuals in engine performance. Upon conclusion of the project, perhaps a peer-reviewed journal article would have been submitted. This is ultimately not how the results were used.

Furthermore, I was not given the opportunity to review any research reports prior to their submission to the industry sponsor. While I am listed as the PI at the top of the Phase I research report, I did not contribute nor review the report prior to dissemination. In addition, on the Phase II report, I am not listed as PI, instead Mr. Brewer is listed as PI (see attached). Again, I was not given the opportunity to comment on this report. While I do not necessarily refute the reports, I do not believe the conclusions drawn are objective or support statements made in the aforementioned letter and included in the EPA petition. In my opinion, this violates any and all academic and research principles, possibly including Tennessee Tech Policy 780.

I have done my best throughout my academic career to support the university to the best of my ability; however, I am an academic and have no interest in the political role this project has played. The reputation of the College of Engineering and myself have been damaged by our unwilling involvement in a political fight. While I have faith that the data collected is valid, the results have been misrepresented and improperly handled. As such, I am withdrawing as PI and I encourage the university to withdraw its public statements until further information can be gathered.

Tennessee Tech / Box 5015 / Cookeville, TN 38505 / 931-372-3454 / F: 931-372-6239 / tntech.edu/ceee

Civil and Environmental Engineering
TENNESSEE TECH

TO: Dr. Bharat Soni, Office of Research and Economic Development

FROM: Dr. Benjamin Mohr, Department of Civil and Environmental Engineering

DATE: January 27, 2018

SUBJECT: Violation of Tennessee Tech Policy 780 Misconduct in Research

Following my prior letter dated January 25, 2018 and sent to President Oldham, as requested, this letter serves as a formal allegation of research misconduct against Mr. Tom Brewer pursuant Tennessee Tech Policy 780. The research misconduct is in regards to the Fitzgerald Glider Kits industry sponsored project. I regret that this situation has elevated to this point, but it does not appear that the university is poised to stem the damage caused by these actions.

When I agreed as PI in signing the project proposal (which I reviewed, but did not write), the intent of the project was to perform *relative* comparisons of emissions from two classes of diesel engines (having had previously conducted research regarding NO_x, SO_x, and other environmental contaminants). This was to be a *preliminary* investigation guiding future research outside the scope of the original proposal. Other portions of the project (e.g., legal issues and economic analysis) were subcontracted to other units within Tennessee Tech. The emissions data were never intended as absolutes, nor directly comparable to EPA standards. Any subsequent analyses regarding engine modifications, or similar, would then be conducted by qualified individuals in engine performance. Upon conclusion of the project, perhaps a peer-reviewed journal article would have been submitted. Regardless, it was my intent that objective results would be submitted to the industry sponsor according to accepted practice. However, this is ultimately not what happened.

Per my letter on January 25, 2018, I have withdrawn as the Principal Investigator (PI) of the research project, along with any implicit support of statements that have been publicly released by the university. I had no role in (nor prior knowledge of) the dissemination of results via letter dated June 15, 2017 to Congressman Diane Black and signed by President Oldham and Mr. Brewer. I did not become aware of this letter until approximately November 1, 2017. I do not agree with statements made in this letter. The letter includes falsification by omissions of scope, methodology, and non-supporting data (e.g., NO_x). For example, the letter states "…research showed that optimized and remanufactured 2002-2007 engines and OEM certified engines performed equally as well and in some instances out-performed the OEM engines." While the data shown do appear to support this claim, NO_x results were completely omitted (i.e., falsification by omission). Lastly, the intent of the project was never to drawn direct comparisons to EPA emissions, which the letter specifically states "[t]he results of the emissions test were compared with the 2010 EPA emissions standards…" as well as in Table 1, "NO_x: None of the vehicles met the standard." This is not simply a difference of opinion in the interpretation of results; this is a violation of research principles by misrepresenting (standard versus non-standard preliminary testing) and withholding data. I had verbally expressed my displeasure regarding the matter to Mr. Brewer and the conflict of interest this has created. I indicated that this would likely lead to "bad press" and is not consistent with the typical release of information for industry-sponsored projects. I should have withdrawn from this project earlier; yet, I have been reassured on multiple occasions that the university was working on a plan to combat the negative publicity and feedback, either by clarification of intent and scope or retraction of explicit support. For example, in response to an email inquiry, I forwarded the email to Mr. Brewer on 11/13/2017, which Dr. Soni ultimately forwarded to Karen Lykins with the statement, "…Karen will handle this request. […] Karen will take care of that and follow-up." I do not take accusations against upper administrators lightly but was unsure of appropriate options, until the publication of Policy 780 on January 1, 2018. Additionally, I can no longer sit back and wait for a response, which by all accounts, I may not agree with. The longer the wait, the more damage occurs.

Furthermore, I was not given the opportunity to review any research reports prior to their submission to the industry sponsor. The Phase I report is undated but sent directly to Fitzgerald on December 23, 2016 (I was carbon copied on the email). While listed as the PI at the top of the Phase I research report, I did not contribute nor review the report prior to dissemination. At the time, this did not appear to be a significant issue as I was aware of the research activities and did not necessarily refute the preliminary results included. In the year between reports, I became increasingly concerned, and voiced these concerns, about the focus of Mr. Brewer on turning this project into a political matter.

More recently, on the Phase II report (dated 12/7/2017 and received via carbon copy on 12/8/2017), Mr. Brewer listed himself as PI (see attached). It is unknown why Mr. Brewer listed himself as PI as I had not yet explicitly withdrawn from the project. Regardless, this is, again, misrepresentation. This is still a significant deviation from commonly accepted practices in reporting research. In addition, there may be other cases of upper administrators listed as PIs instead of faculty on research proposals/reports without the permission of the actual PI.

Regardless of legal data ownership, I believe all faculty PIs expect university personnel, particularly upper administration, to be good stewards of data and subsequent research projects. Erosion of trust due to misuse, manipulation, and/or misrepresentation of data without the consent of faculty is catastrophic to every faculty and the university as a whole. Right now, Tennessee Tech is facing unprecedented negative exposure. The misuse of results to support political opinions is a dangerous precedent that should worry all university employees. This has caused potentially irreparable damage to the university, the College of Engineering, as well as my own reputation.

In conclusion, because there will be, at a minimum, perceived conflict of interest between Mr. Brewer, yourself, and possibly other upper administrators, I highly encourage the appointment of an external investigator for these claims.

Mechanical Engineering
TENNESSEE TECH

Memorandum

To: Christy Killman, President of the TTU Faculty Senate

From: Corinne Darvennes, Professor, Department of Mechanical Engineering

Ahmed ElSawy, Chairman, Department of Manufacturing and Engineering Technology

Stephen Idem, Professor, Department of Mechanical Engineering

Jane Liu, Professor, Department of Civil and Environmental Engineering

Joseph Ojo, Professor, Department of Electrical Engineering

Holly Stretz, Professor, Department of Chemical Engineering

Date: February 5, 2018

Re: Fitzgerald Glider Study

Per [1], gliders 'are medium and heavy duty trucks that are assembled by combining certain new truck parts (that together constitute a 'glider kit') with the refurbished powertrain – the engine, the transmission, and typically the rear axle – of an older truck'. In July 2016, Tennessee Tech University agreed to participate in a project sponsored by Fitzgerald Glider Kits. As provided in the Proposal Endorsement Form recently provided to the College of Engineering, Objective 1 of the study was to "Compare Glider Kit compliance with existing and proposed EPA regulation challenges. Establish a matrix of remanufactured components and emissions of comparable engine choices". Dr. Ben Mohr, the Chair of the Department of Civil and Environmental Engineering, and Mr. Mark Davis, Academic Support Associate, were listed on the proposal as the grant personnel. Dr. Mohr was asked to be the PI on the project, since the testing was going to be done by Mark Davis, and they needed a faculty member from CEE to serve as the Principal Investigator. Mr. Tom Brewer was not listed as Principal Investigator or Senior Personnel. He is the Associate Vice President for Research, and Director of the Center for Intelligent Mobility, in the Office of Research. The proposal was approved by Dr. Bharat Soni, the Vice President for Research & Economic Development. Therein several salient facts relevant to this study are presented:

1. Mr. Tom Brewer and Dr. Bharat Soni were hired by President Oldham without the benefit of a formal search being conducted, and with little or no input from the faculty or other administrators in TTU. Mr. Brewer has a B.S. degree in Business Administration. Dr. Soni has a Ph.D. in Applied Mathematics, and an M.S. degree in statistics and operation research, and a B.S. degree in statistics. In August, 2017, the creation of the Center for Intelligent Mobility was announced [2]. The center was created without seeking advice from the TTU faculty or other administrators. The center is housed in the Office of Research, and does not coordinate any of its activities with other research centers in the College of Engineering. The Director of the center does not have formal degrees in any engineering discipline.
2. On June 15, 2017 a letter (which constitutes the only publically available report of the test results from the Fitzgerald project) was submitted to Congressman Diane Black [1]. The letter was signed by Dr. Philip Oldham, President of Tennessee Tech University, and Mr. Brewer, respectively. In this letter, it was claimed that TTU tested "thirteen heavy-duty trucks on a common chassis dynamometer at a common site; eight trucks were remanufactured engines and five were OEM 'certified' engines, all with low mileage." The TTU summary report was subsequently featured in a petition from Fitzgerald Gliders Kits, LLC, to Mr. Scott Pruitt, Administrator, Environmental Protection Agency, requesting that Phase 2 Final Rules, governing allowable levels of emissions from medium- and heavy-duty engines, not be applied to glider kits [1]. As noted in [3], that statement represents "all that is said by TTU to describe its testing. The report presents (1) no details on the specifics of the test vehicles (e.g. model year, mileage, and condition); (2) no information on test cycles, test conditions, test loads, and test fuels; (3) no information on the testing facilities (e.g. test equipment, calibration and maintenance practices, and quality assurance procedures); (4) no information on emission test protocols; and (5) no meaningful data on the pollutants of interest, such as NO_x and PM." As indicated in [3], "TTU's letter indicated that the PM levels were 'below the threshold detection limit' and, consequently, no test data were presented. TTU did not measure PM levels.
3. In a follow-up conversation with EPA staff [4], "TTU stated that no particulate matter samples were collected during testing. The sampling probe filter used with the Enerac M500 was visibly inspected for particulate matter. Particulate quantification was subjective in that it was visual only. TTU stated they performed a smoke test but did not elaborate."
4. The cursory report issued to EPA by Dr. Oldham and Mr. Tom Brewer did not measure or report such quantities as NO_x and Particulate Matter (PM) concentrations. However, the letter from President Oldham to Congresswoman Black clearly indicated that all engines that were tested met or exceeded the current limits on these emissions. These tests were performed without the participation of qualified TTU researchers, and despite the flawed nature of the testing, selective results were therein conveyed to EPA. However, a fully-qualified expert in the area of diesel engine testing and emission control was available in the College of

Engineering beginning Aug. 1, 2016, shortly after the start of the Fitzgerald Project Phase I. Despite the faculty member's extensive expertise and experience in this area, the faculty member was never asked to participate in the Fitzgerald project, either directly or indirectly. The faculty member was never asked to review any test data, reports, test conclusions, or the letter sent to EPA by Dr. Oldham and Mr. Tom Brewer to provide independent review of the results and conclusions.

5. Although Dr. Mohr was originally listed as the PI on the first phase of the Fitzgerald Glider project, he has stated that he did not actually do any of the testing, and his requests to visit the test site at Fitzgerald were never arranged. Tom Brewer ran the project as a "shadow PI", and did not even show the final report to Dr. Mohr until it was sent to Fitzgerald and copied to him. Ben Mohr played no part in the subsequent petition to EPA, and that did not include Dr. Mohr's signature as the principal investigator. The apparent change in status of the PIs was not conveyed to Dr. Mohr or the College of Engineering. Data from the project were released to EPA, without the knowledge of Dr. Mohr, by individuals who lack the specific education and experience to properly interpret the data or assess whether the experiments were conducted according to well-established standard protocols.
6. Independent professional experts at the EPA recently published the Agency's own study of glider vehicle emission tests that directly contradicts TTU's findings; refer to [5].
7. Mr. Brewer has stated that he and the technician did not receive any pay from the project. This further makes TTU susceptible to the charge of Conflict of Interest, since it appears that the testing was done with cost share from the university (not charging for the time spent by Tom Brewer and the technician) in addition to the fact that Dr.Soni reduced the indirect cost to only 10%, as opposed to the standard rate of 42%. The formal announcement made on Aug. 8, 2017 that Fitzgerald Glider Kits would fund a new building to house the TCIM further makes the apparent conflict of interest more troubling.
8. A resolution approved by a TTU Faculty Senate vote on January 30, 2018 called on President Oldham to issue a signed letter withdrawing all Tennessee Tech support from the study, and to suspend all present research activities and other associations with Fitzgerald, pending the results of the investigation. In his written response to Dr. Christy Killman, TTU Faculty Senate President, Dr. Oldham did not respond to those entreaties. As of the date of this memorandum, TTU has not renounced the study.

In summary, we are concerned that Dr. Oldham, Dr. Soni, and Mr. Brewer risked TTU's reputation and integrity by embarking on this project. They have publicly exposed the university to possible legal actions by advocating for a national policy change. Moreover they clearly violated university policies regarding the change of the PI, and conduct of externally funded projects. We urge the Faculty Senate to consider these facts when contemplating the future response to the actions of the TTU administration.

REFERENCES

[1] https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf

[2] https://www.tntech.edu/news/releases/tennessee-tech,-tcat-livingston,-fitzgerald-companies-announce-new-partnership

[3] https://www.edf.org/sites/default/files/content/EDF%20ELPC%20WE%20ACT%20Comments%20on%20Gliders%20Proposed%20Repeal%20final.pdf

[4] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2416

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

CC: Darrell Hoy, Interim Dean, College of Engineering
Vahid Motevalli, Associate Dean for Research & Innovation

Office of the President

TENNESSEE TECH

February 19, 2018

Honorable Scott Pruitt
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 1101A
Washington, DC 20460

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Mr. Pruitt:

Please be advised that regarding the "Environmental & Economic Study of Glider Kit Assemblers" report, knowledgeable experts within the University have questioned the methodology and accuracy of the report. Therefore, Tennessee Tech University is actively pursuing a peer review of the report and supporting data to assure its validity. The University also is investigating an allegation of research misconduct related to the study. We request that you withhold any use or reference to said study pending the conclusion of our internal investigations.

We sincerely regret any inconvenience this imposes, but our aim is to ensure the absolute integrity and objectivity of any scholarly product of Tennessee Tech. We anticipate a timely and thorough review following which we will inform you of the outcome. Thank you for your assistance and patience as we work through the concerns raised.

Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6352 / www.tntech.edu/president

United States Senate

WASHINGTON, DC 20510

March 12, 2018

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency (EPA)
1200 Pennsylvania Ave., NW
Washington, DC 20004

Dear Administrator Pruitt:

We write to request information about EPA's November 16, 2017 proposal to repeal air emission standards for some of the dirtiest heavy-duty trucks on the road.[1] Glider trucks, also known as "zombie trucks,"[2] look like new trucks on the outside—and are advertised and sold as new—but are equipped with old, high-polluting diesel engines on the inside. 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 (NO_x) pollution, of model year 2014 and 2015 trucks.[3] Other EPA analyses concluded that, if left unregulated, glider vehicle emissions could prematurely kill thousands of people, and increase instances of lung cancer, chronic lung disease, heart disease, and severe asthma attacks.[4] We are also deeply troubled that this proposal, which appears to largely benefit a single company, was influenced by an industry-funded "study" that is currently the subject of an official investigation into research misconduct for failing to adhere to basic scientific standards.[5] We urge you to withdraw this dangerous, legally questionable proposal immediately.

EPA and the National Highway Traffic Safety Administration (NHTSA) have worked closely with states, vehicle manufactures, environmental groups, and other interested stakeholders to develop federal standards that reduce vehicle pollution and improve fuel-economy. An important focus of these regulations has been medium- and heavy-duty vehicles, which, despite constituting only 5% of the domestic vehicle fleet, produce 20% of all transportation-sector emissions. EPA and NHTSA finalized an initial round of greenhouse gas and fuel economy standards for these vehicles in 2011, avoiding 270 million tons of CO_2 emissions and saving consumers $50 billion at the pump.[6] In 2016, the agencies completed the second round of regulations ("Phase 2"), setting standards for these highly-polluting vehicles out to model year 2027. These carefully crafted rulemakings were the result of "more than 400 meetings with

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[1] 82 Fed. Reg. 53,442 (Nov. 16, 2017).

[2] *See* Rachel Muncrief & Josh Miller, "Scott Pruitt's EPA wants to resurrect the dirty diesel," INTL. COUNCIL ON CLEAN TRANSP., Dec. 1, 2017, https://www.theicct.org/blog/staff/glider-proposal-means-resurrecting-dirty-diesel.

[3] EPA NATL. VEHICLE & FUEL EMISSIONS LAB., "Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles" (Nov. 20, 2017) at 3 [hereinafter "OTAQ Study"], https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417.

[4] Response to Comments at 1877, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF.

[5] https://www.washingtonpost.com/news/energy-environment/wp/2018/02/21/tennessee-tech-withdraws-industry-funded-study-used-to-back-controversial-epa-truck-rule/.

[6] 76 Fed. Reg. 57,106 (Sept. 15, 2011).

manufacturers, suppliers, trucking fleets, dealerships, state air quality agencies, non-governmental organizations . . . and other stakeholders," as well as feedback received from over 200,000 public comments, including in two public hearings.[7] In contrast, EPA's proposal, which exempts some of the worst-polluting trucks from being subject to air pollution limits, was reportedly developed at the behest of politically well-connected representatives of glider manufacturers.[8]

Glider trucks used to be a niche industry, with less than a thousand vehicles produced each year—primarily for engine-salvage purposes when relatively new trucks got in collisions. By 2015, however, "significantly over 10,000" glider vehicles were being sold, and almost every engine used to complete a glider truck is a rebuilt diesel engine originally manufactured between 1998 and 2002.[9] These engines are so dirty that, during EPA testing conducted in late 2017, the black soot belching from glider trucks clogged the filters of EPA's testing equipment, triggering a "PM equipment alarm" that prevented your technical staff from proceeding under normal testing conditions.[10]

EPA soon realized that, if left unregulated, by 2025 glider vehicles would create one-third of all NO_x and PM emissions from heavy-duty trucks, even though they would only comprise 5% of the heavy-duty tractor fleet. In its 2016 "Phase 2" medium and heavy-duty rule, after taking two rounds of public comment on whether and how to address glider vehicles, EPA finalized regulations that ensured the emissions from glider trucks would be reduced while minimizing disruption to the few companies that manufacture glider kits and vehicles.[11]

Although no one from the glider industry challenged the final glider provisions in court, on May 8, 2017, you personally met with representatives of Fitzgerald Glider Kits, LLC (Fitzgerald),[12] the self-proclaimed, "largest glider kit dealer in the country"[13] and a political supporter of President Trump.[14] Two months after meeting with you, on July 10, 2017, Fitzgerald and two other glider kit dealers sent you a petition seeking reconsideration of the glider requirements.[15] You also spoke later that month with Congresswoman Diane Black, who has vocally supported the Fitzgerald Petition.[16]

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[7] 81 Fed. Reg. 73,478, 73,481 (Oct. 25, 2016).

[8] *See, e.g.*, Eric Lipton, "How $225,000 Can Help Secure a Pollution Loophole at Trump's E.P.A.," N.Y. TIMES, Feb. 15, 2018, https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html.

[9] *See* EPA memorandum from Charles Moulis to William Charmley, "Summary of Glider Production Data" (Nov. 15, 2017) at 1–3, https://www.eenews.net/assets/2017/11/21/document_gw_05.pdf.

[10] OTAQ Study, *supra* note 3, at 14–15.

[11] *See* 81 Fed. Reg. at 73,941–46.

[12] "EPA Administrator Scott Pruitt's schedule, from April 3, 2017 to Sept. 8, 2017," WASH. POST, Sept. 22, 2017, https://www.washingtonpost.com/apps/g/page/politics/epa-administrator-scott-pruitts-schedule-from-april-3-2017-to-sept-8-2017/2241/.

[13] *See* "About Fitzgerald," FITZGERALD GLIDER KITS, https://www.fitzgeraldgliderkits.com/about-fitzgerald/.

[14] *See, e.g.*, Eric Lipton, "How $225,000 Can Help Secure a Pollution Loophole at Trump's E.P.A.," N.Y. TIMES, Feb. 15, 2018, https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html.

[15] Fitzgerald Glider Kits, LLC, et al., "Petition for Reconsideration" July 10, 2017 [hereinafter "Fitzgerald Petition"], https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

[16] https://black.house.gov/media/press-releases/epa-intends-roll-back-job-killing-regulation-hurting-small-business-owners.

The Fitzgerald Petition lists three reasons why the glider truck industry should be exempt from modern pollution controls, most significantly that (1) EPA lacks statutory authority to regulate them; and that (2) a "recent study by Tennessee Technological University," as well as other factors, demonstrate that EPA based its conclusions about glider vehicle emissions on "unsupported assumptions," because glider vehicles actually performed as well or better from an emissions perspective than trucks with newer engines. [17]

On August 17, 2017, you sent letters to Fitzgerald and the other petitioners, saying that the petition raised "significant questions" about EPA's legal authority "as well as the soundness of the EPA's technical analysis" regarding glider emissions. You told the petitioners that EPA had, for both legal and technical reasons, "decided to revisit" the glider rules.[18]

On November 9, 2017, you signed the proposal to repeal emission standards for glider vehicles, glider engines, and glider kits, and it was published on November 16, 2017. The EPA proposal states that the basis for repeal would be a legal reinterpretation of Clean Air Act (CAA) definitions, even though you appeared to acknowledge that your reinterpretation would be contrary to the CAA's plain language.[19] As support for this strained interpretation of the law (which conflicts with Supreme Court precedent[20]), EPA cites no legislative history or judicial precedent discussing congressional intent under the Clean Air Act. Instead, EPA's legal case rests entirely on the Automobile Information Disclosure Act of 1958, a sixty-year-old law regulating the placement of stickers on automobile windows, which has nothing to do with either air pollution or heavy-duty trucks.[21]

Moreover, since EPA issued the proposal, serious questions have been raised about the Tennessee Tech study that had caused you to question "the soundness of the EPA's technical analysis" and thus decide to revisit the glider rules.[22] Whereas the technical information underlying the 2016 rule that EPA proposes to partially repeal was "based on a vast body of existing peer-reviewed work," the only "science" cited by EPA's proposal is the Tennessee Tech study, which claims that glider vehicles perform just as well—if not *better* than—vehicles with newer engines.

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[17] Fitzgerald Petition, *supra* note 15, at 3–4.

[18] https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-fitzgerald-gliders-ltr-2017-08-17.pdf.

[19] 82 Fed. Reg. at 53,444–45 (citing CAA section 216(3)) ("Focusing solely on that portion of the statutory definition that provides that a motor vehicle is considered 'new' prior to the time its 'equitable or legal title' has been 'transferred to an ultimate purchaser,' a glider vehicle would appear to qualify as 'new.'").

[20] *See, e.g.*, *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007) (rejecting EPA's narrow interpretation of "pollutant," because Congress used broad definitional language in an "intentional effort to confer the flexibility necessary to forestall [ ] obsolescence," so that EPA could apply overarching congressional intent to "changing circumstances and scientific developments," including those Congress "might not have appreciated" specifically at the time).

[21] 82 Fed. Reg. at 53,445–46.

[22] https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-fitzgerald-gliders-ltr-2017-08-17.pdf.

On February 16, 2018, the interim dean of the College of Engineering at Tennessee Tech lambasted the study's conclusions as "farfetched" and "scientifically implausible,"[23] and faculty called for an investigation into research misconduct.[24] It has since come to light that the study was not subject to peer review and was paid for by Fitzgerald Glider Kits.[25] Tennessee Tech has suspended its relationship with Fitzgerald, has launched an official investigation into research misconduct, and has asked you to disregard the study pending the outcome of that investigation.

There are ample reasons why EPA should suspect that the Tennessee Tech research was not conducted appropriately. The study was advertised as a product of Tennessee Tech's "Department of Civil and Environmental Engineering,"[26] despite the fact that it was apparently not overseen, written, reviewed, or verified by any "qualified, credentialed engineering faculty member."[27] And although the university president wrote a letter saying that all glider trucks "met the standard" for particulate matter,[28] study participants spoke by phone with EPA technical staff on November 7, 2017 and admitted they had taken no numerical measurements of PM emissions—in fact, *they had not collected PM samples at all*.[29]

The College of Engineering's interim dean also highlighted a "devastating" critique of the study by the Environmental Defense Fund,[30] which noted among other things that the research was conducted at a Fitzgerald-owned facility that does not appear to even have emissions-testing equipment that meets standard EPA testing procedures.[31]

Absent from EPA's proposal is any mention of the agency estimates that every 10,000 glider trucks can lead to the premature deaths of 1,600 people.[32] Absent is the fact that a *single year* of glider vehicle sales produces more than 10 times the NO_x emissions of Volkswagen's entire criminal defeat-device scheme.[33] Absent is a November 2017 study by EPA technical staff, which found that glider trucks with Fitzgerald-rebuilt engines emitted up to 450 times the PM

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[23] Memorandum from Darrel Hoy, Interim Dean, College of Engineering (Feb. 16, 2018) at 2 [hereinafter "Hoy Memorandum"], *available at* https://www.documentcloud.org/documents/4378485-Combatting-Pollution-in-Diesel-Trucks-and-the.html#document/p217/a405776.

[24] TENN. TECH. FACULTY SENATE, "Faculty Senate Resolution on Fitzgerald Research Study" (Jan. 30, 2018), https://www.tntech.edu/assets/usermedia/facultysenate/resolutions/Resolution_on_Fitzgerald_Study_1-30-2018.pdf.

[25] Kate Cook, "TTU investigating Fitzgerald study," HERALD-CITIZEN, Feb. 11, 2018, http://herald-citizen.com/stories/ttu-investigating-fitzgerald-study,25943.

[26] Letter from Phillip B. Oldham, President, Tenn. Tech. Univ., to Scott Pruitt, EPA Admin'r (Feb. 19, 2018) at 1.

[27] Hoy Memorandum, *supra* note 23, at 1–2.

[28] Letter from Phillip B. Oldham, *supra* note 26, at 1.

[29] Memorandum from George Mitchell, Mechanical Eng'r, Assessments & Standards Div., EPA Office of Transp. & Air Quality, "EPA Teleconference with Tennessee Tech University Regarding Glider Test Report Summarized in June 2017 Letter; Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule," Nov. 13, 2017 at 2–3, *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2416.

[30] Hoy Memorandum, *supra* note 23, at 2.

[31] *See generally* Comments of EDF, ELPC, and WE ACT (Jan. 5, 2018) at 17–24, https://www.edf.org/sites/default/files/content/EDF%20ELPC%20WE%20ACT%20Comments%20on%20Gliders%20Proposed%20Repeal%20final.pdf [hereinafter "EDF Comment"].

[32] Response to Comments at 1877, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF.

[33] Muncrief & Miller, *supra* note 2.

pollution and 43 times the NO_x pollution of modern trucks.[34] Absent is the fact that, by 2025, EPA's proposal would undo—four times over—the interstate NO_x reductions achieved by power plants under the Cross-State Air Pollution Rule.[35] Absent are the economic costs that unrestricted glider vehicles impose on society, which EPA estimates at $6 to $14 billion *every year*.[36]

In light of the severe adverse health effects of this rule, as well as the fact that EPA's decision-making relied on a study that was withdrawn pending the outcome of an official investigation into research misconduct, we ask that you immediately announce plans to withdraw this proposal. We additionally request that you please provide us with responses to the following questions and requests for information:

1. Please provide us with non-redacted copies of all documents (including but not limited to emails, memos, meeting notes and correspondence) regarding the November 16, 2017 proposed repeal of emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits. This request includes, *but is not limited to*:

    a. all documents concerning any and all EPA scientific analysis conducted in relation to the proposed repeal;

    b. all documents concerning any and all EPA legal analysis conducted in relation to the proposed repeal; and

    c. any documents submitted by EPA to OMB in 2017 that describe the costs and benefits associated with the proposed repeal.

2. Please provide us with non-redacted copies of all documents (including but not limited to emails, memos, meeting notes and correspondence) between EPA representatives and representatives of Fitzgerald Glider Kits, LLC, Harrison Truck Centers, Inc., and/or Indiana Phoenix, Inc. since January 20, 2017. For the May 8, 2017 meeting with Administrator Pruitt and representatives of Fitzgerald Glider Kits, please provide me with a list of all people who attended that meeting (including by telephone) and with copies of any materials sent in advance or left behind with EPA personnel.

3. Please provide us with non-redacted copies of all documents written or received by EPA (including but not limited to emails, memos, meeting notes and correspondence) that relate to the Tennessee Tech's study on glider vehicle emissions, including, *but not limited to*, documents received from persons outside of EPA; any underlying data from the study;[37] and any concerns about the study raised by EPA technical staff.

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[34] OTAQ Study, *supra* note 3, at 14–15.
[35] EDF Comment, *supra* note 31, at 11 & n.41.
[36] 81 Fed. Reg. at 73,943.
[37] *See, e.g.*, Email from William Charmley to Tom Brewer, "Re: TTU Follow-Up 11-28-2017," Dec. 1, 2017 (indicating EPA's possession of "more detailed emissions data" from Tennessee Tech, and ongoing EPA analyses), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4272.

4. Please provide us with non-redacted records of all meetings that EPA political appointees have taken with all individuals and corporations regarding the glider provisions of the Phase 2 Rule since January 20, 2017.

5. In October and November of 2017, EPA technical staff in the Office of Transportation and Air Quality (OTAQ) were conducting emissions testing on heavy-duty glider vehicles containing engines rebuilt by Fitzgerald.[38] The ultimate results of that research showed extraordinary levels of PM and NO_x pollution from those vehicles—directly contradicting the purported results of the Tennessee Tech study. Your proposal mentions the Tennessee Tech study, but makes no mention of the EPA technical study contradicting it. Your proposal was also published on November 16, 2017—four days before the OTAQ study was purportedly finalized (November 20), and six days before it was released to the public (November 22). Did you or any other political appointees know that OTAQ was conducting this study before it was finalized? If so, when were those political appointees aware of any final or preliminary results of the study?

6. Your August 17, 2017 letter to Fitzgerald Glider Kits states that Fitzgerald's petition "raises concerns that the EPA relied upon 'unsupported assumptions rather than data' with regard to the emission impacts of glider vehicles" and that, "In light of these issues, the EPA has decided to revisit the provisions in the Phase 2 Rule that relate to gliders." On what date on or before August 17, 2017, had EPA "decided to revisit" those provisions, and on what specific bases were those decisions made?

7. EPA concluded in 2016 that, if left unrestricted, emissions from heavy-duty glider tractors would represent "about one third of all NO_x and PM emissions from heavy-duty tractors in 2025." Those excess emissions impose $6 to $14 billion in annual costs to society, and "removing even a fraction of these glider vehicles with high polluting engines from the road will yield substantial health benefits."[39] Do you have any reason to doubt the veracity of these figures? If you do, please explain the reason(s) why, and provide supporting documentation.

8. Clean Air Act section 216(3) defines "new motor vehicle" as "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser."

    a. As an initial matter, are glider vehicles motor vehicles? If no, please explain your answer and cite any provisions of the CAA upon which your answer relies.

    b. If a glider vehicle has not been sold to any ultimate purchaser, has the equitable or legal title of that unsold glider vehicle been transferred to an ultimate purchaser?[40] If yes, please explain your answer and cite any provisions of the CAA upon which your answer relies.

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[38] *See* OTAQ Study, *supra* note 3, at 4.
[39] 81 Fed. Reg. at 73,493.
[40] By "ultimate purchaser," we refer to the definition in CAA section 216(5), 42 U.S.C. § 7550(5).

9. Hypothetically, imagine that a new Volvo dealer sells a brand new Volvo VNL heavy-duty truck[41] to the vehicle's first ultimate purchaser. The Volvo VNL is straight off the assembly line, including with a brand new powertrain.

    a. Would that Volvo VNL be a "new motor vehicle" under CAA section 216(3)? If your answer is anything other than "yes," please explain your answer and cite any provisions of the CAA upon which your answer relies.

    b. Would the same Volvo VNL be a "new motor vehicle" under CAA section 216(3) if all characteristics from the hypothetical vehicle were the same, except that at the time of the sale the truck had i) pre-owned, refurbished tires salvaged from an older truck, or ii) a pre-owned, refurbished windshield installed?

10. Does the Automobile Information Disclosure Act of 1958, Pub. L. 85-506, contain any requirements applicable in any way to either air pollution or to heavy-duty commercial trucks? If yes, please provide a citation to those provisions.

11. Are the degree of emissions from glider trucks relevant in determining whether Congress intended to allow EPA to regulate emissions from new glider vehicles, glider kits, or rebuilt glider engines under the Clean Air Act? If yes, explain how emissions data influenced the proposal.

12. Are the human health consequences of glider truck emissions at all relevant in determining whether Congress intended to allow EPA to regulate emissions from new glider vehicles, glider kits, or rebuilt glider engines under the Clean Air Act? If yes, explain how human health considerations influenced the proposal.

Thank you very much for your attention to this important matter. Please provide your response no later than April 2, 2018. If you or members of your staff have further questions, please feel free to ask them to contact Michal Freedhoff at the Committee on Environment and Public Works at (202) 224-8832, or Jonathan Black with Senator Udall's office at (202) 224-6621.

Sincerely,

Senator Tom Carper
Ranking Member
U.S. Senate Committee on
Environment and Public Works

Senator Tom Udall
Ranking Member
U.S. Senate Subcommittee on the
Department of the Interior,
Environment, and Related Agencies

[41] *See* "New VNL | Volvo Trucks USA," VOLVO, https://www.volvotrucks.us/trucks/vnl/.

ADMINISTRATOR
OFFICE OF
INFORMATION AND
REGULATORY
AFFAIRS

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

See glider questions and responses from Administrator Rao in red boxes below

June 11, 2018

The Honorable Thomas R. Carper
United States Senate
Washington, DC 20510-0803

Dear Senator Carper:

Thank you for your letter about several regulatory and information collection policy concerns. Your letter raised questions about the role of the Office of Information and Regulatory Affairs (OIRA) in setting government-wide regulatory and information policy and about OIRA's role in the implementation of Executive Order (EO) 13771. Please find responses to your questions below.

1. **What specific role do you believe OIRA should play with regard to regulations promulgated by independent agencies such as the Securities and Exchange Commission or the Nuclear Regulatory Commission?**

   All agencies should ensure that regulations are based on sound analysis and robust engagement with affected stakeholders. The Administration is considering the issue of whether to review the rules of traditionally independent agencies. OIRA currently interacts with independent agencies through major determinations under the Congressional Review Act (CRA), information collection review under the Paperwork Reduction Act (PRA), and small business review panels pursuant to the Small Business Regulatory Enforcement Fairness Act (SBREFA). Moreover, independent agencies participate in the Unified Agenda of Regulatory and Deregulatory Actions under EO 12866.

2. **Do you agree that OIRA must maintain complete analytic integrity and continue to rely on evidence-based methodologically excellent analysis notwithstanding any competing objectives sought by other elements of the Executive Office of the President?**

   OIRA is committed to objective and robust analysis based on long-established principles reflected in statutes, executive orders, and OMB guidance.

3. **Do you agree that benefits from regulations that may not be necessarily monetizable should be taken into account when reviewing regulations?**

Yes. Executive Order 12866 and OIRA's longstanding guidance make clear that qualitative benefits can be taken into account in regulatory analysis.

4. **Since the beginning of this Administration, President Trump has issued a series of Executive Orders, seemingly aimed at reducing and eliminating the "costs" of federal regulations across the board. For example, agencies are required to identify two regulations for repeal for every one regulation that is promulgated, set a regulatory budget, and establish regulatory review teams to identify regulations for repeal.**

   What do you envision as OIRA's role in these efforts? How do you plan to ensure that these orders do not interfere with the need for agencies to follow the direction of Congress and the courts in establishing rules that protect the health and safety of all Americans? Further, how do you plan to ensure that the benefits, economic and otherwise, are accounted for when reviewing regulations for repeal? Do you agree that regulations that are mandated by statute, including those that are required by statute to be promulgated once a scientific or other determination by an Executive branch agency is made, should be exempted from being subject to the "two for one" Executive Order?

   OIRA works closely with agencies to implement EO 13771 and to achieve the President's ambitious goals in a manner consistent with legal requirements. Executive Order 13771 does not prevent agencies from implementing statutory mandates. To the contrary, the requirements of EO 13771 apply only to the extent permitted by law. As stated in OMB guidance issued in April 2017, EO 12866 remains the primary governing executive order regarding regulatory planning and review.[1] Nothing in EO 13771 prevents an agency from issuing regulations mandated by statute. OIRA has implemented EO 13771 with flexibility, in recognition of legal requirements and public need. For example, agencies may seek waivers from the requirements of EO 13771, offset new regulatory costs with carryover cost savings from previous fiscal years, or offset the costs of a regulation in a future year.

5. **Do you agree that agencies whose mandate is to collect data in support of providing statistical and other data-dependent analyses must continue to be permitted to independently propose and obtain access to information needed to perform their mission? Will you commit to ensure that these agencies such as the Census Bureau have the resources, support, and independence needed to perform their missions?**

   OIRA supports the work of statistical agencies through a branch dedicated to Statistical and Science Policy, headed by the Chief Statistician of the United States. OIRA has long

[1] Office of Mgmt. & Budget, Memorandum No. M-17-21, "Guidance Implementing Executive Order 13771" (Apr. 5, 2017), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/M-17-21-OMB.pdf.

worked with statistical agencies and programs to ensure that they comply with the Paperwork Reduction Act, OMB statistical policy directives, and information quality guidelines. Specifically, OIRA is committed to upholding the existing guidance outlined in OMB's statistical policy directives and is responsible for coordinating with the budget side of OMB to ensure funding for the statistical agencies sufficient to meet their missions.

Thank you again for sharing your important perspective on rulemaking and information policy. If you or your staff have any questions, please contact the Office of Management and Budget's Legislative Affairs office at LegislativeAffairs@omb.eop.gov.

Sincerely,

Neomi Rao
Administrator
Office of Information and Regulatory Affairs

Post-Hearing Questions for the Record
"Reviewing the Office of Information and Regulatory Affairs"
From Senator Thomas R. Carper

On April 24, 2018, EPA announced that it was requesting public comments to a policy that would drastically change the way EPA uses scientific information. The proposed new policy will require EPA to use only data that are public and reproducible. The new policy is very similar to Congressional efforts to require that all raw data from scientific studies is available to the public before EPA can use it to act. Those efforts were previously embodied in two failed bills: the HONEST Act and its predecessor the Secret Science Act. Reports from 2017 also indicate that EPA's leadership prevented analysis conducted by EPA career staff analysts of the HONEST Act from being transmitted to the Congressional Budget Office. That staff analysis found that the HONEST Act would cost $250 million per year to implement.

During the hearing on April 12, 2018, Senator Hassan asked whether "you and your office provided any input to Administrator Pruitt" on EPA's anticipated proposal. You responded:

"You know, the questions about information quality are very important to us, and that is something that my staff has been working with EPA on, to develop best practices in that area. . . . Well, I think we want to make sure that we do have the best available evidence. I think it is also important for the public to have notice and information about the types of studies that are being used to--which are being used by agencies for decision-making. So I think that there is a balance to be struck there, and I think that is something that the EPA is working towards."

1. It is unclear from your response whether you and your staff provided specific input to EPA on the proposal. Did you or your staff provided input to EPA on that proposal? Did you review the proposal at any stage of its development? If so, please provide all documents (including emails, comments, memos, white papers, meeting minutes and correspondence) containing any discussions between EPA and the Office of Information and Regulatory Affairs (OIRA) regarding the proposed policy.

   Answer: OIRA reviewed the notice of proposed rulemaking (NPRM) for EPA's "Strengthening Transparency in Regulatory Science" as a significant regulatory action pursuant to Executive Order (EO) 12866. The version of the NPRM that EPA originally submitted to OIRA is available at https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0259-0001, as is the final document on which OIRA concluded review.

2. What is your understanding of how EPA will be able to comply with both this policy and the Administrative Procedure Act's mandate that EPA consider and respond to every study submitted to it through notice and comment?

   Answer: The NPRM would not limit EPA's consideration of such studies. Agencies are currently required, under the Information Quality Act, to consider the quality of any

submitted studies. The proposed rule discusses a variety of ways in which data can be made public while still protecting sensitive and confidential information. If EPA concludes that the data cannot be made public consistent with those obligations, the proposed rule would allow the EPA Administrator to grant an exemption.

3. Do you believe the rigorous peer review process that is currently used in the scientific community to vet scientific studies is adequate for agency reliance on those studies? If not, why not?

Answer: The Office of Management and Budget (OMB) 2005 Information Quality Bulletin for Peer Review[1] sets out requirements for peer reviews for "scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions." The Bulletin requires additional procedures because journal peer review varies in rigor and transparency and does not always address the questions relevant to regulatory policymaking. The Bulletin explains:

> [T]he intensity of peer review is highly variable across journals. There will be cases in which an agency determines that a more rigorous or transparent review process is necessary. For instance, an agency may determine a particular journal review process did not address questions (e.g., the extent of uncertainty inherent in a finding) that the agency determines should be addressed before disseminating that information. As such, prior peer review and publication is not by itself sufficient grounds for determining that no further review is necessary.

We continue to endorse the longstanding additional procedures laid out in the 2005 Bulletin for Peer Review for the proper use of scientific information in public policymaking.

4. Generally, does EPA consult with you and your staff about its various deregulatory and regulatory actions before publicly announcing its intention to take those actions? For the period January 20, 2017 to the present, please provide a complete list of every regulatory or deregulatory EPA action for which OIRA has provided substantive input prior to EPA publicly announcing its intention to take that action.

Answer: OIRA consults with EPA about deregulatory and regulatory actions through EPA's submissions to the Unified Agenda of Regulatory and Deregulatory Actions (Agenda), which is published twice each year. The Agenda lists the regulatory and deregulatory actions that each agency anticipates taking in the coming year. OIRA's pre-publication review of the Agenda submissions provides an opportunity to discuss with

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[1] Office of Mgmt. & Budget, Memorandum No. M-05-03, "Final Information Quality Bulletin for Peer Review" (Dec. 16, 2004), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2005/m05-03.pdf.

agencies their upcoming regulatory actions. EPA's Spring Agenda can be found at this link, https://www.reginfo.gov/public/do/eAgendaMain.

Last November, EPA Administrator Scott Pruitt proposed to repeal emission standards for called "glider" vehicles. *See* 82 FR 53,442 (Nov. 16, 2017). New glider trucks are often referred to as "zombie trucks" because, while they look new on the outside, on the inside they have old, dirty diesel engines that, according to the EPA's own 2017 estimates, can emit up to 450 times the particulate matter of a modern truck. (There is no mention of this in the notice of proposed rulemaking.) On March 12, 2018, Senator Udall and I sent a public letter to Administrator Pruitt urging him to withdraw rule. Among many other concerns, our letter noted that Administrator Pruitt appeared to have made his initial decision to revisit the glider rules based on a potentially fraudulent academic study financed by the glider industry.

5. In your opinion, should agencies generally avoid making regulatory decisions based on scientific studies that have been withdrawn pending the completion of an official university investigation into research misconduct? If not, why not?

   Answer: In general, agencies should make use of the best available science in rulemaking. Assessing the best available science may include evaluating the integrity of scientific studies.

6. According to documents posted to the rulemaking docket, draft versions of the repeal had labeled it an "economically significant" rule pursuant to E.O. 12866.[2] Interagency commenters expressed concerns that the rule did not adequately discuss costs and benefits, including as they relate to small businesses that will compete for sales with polluting glider vehicles. Instead of developing a cost-benefit analysis of the proposed economically significant rule, a track-changes file in the rulemaking docket shows that, in the afternoon the day before Administrator Pruitt signed the proposal, the word "not" was added before "economically significant."[3] As a result of these changes, the rule was no longer required to comply with E.O. 12866,[4] or with E.O. 13045, "Protection of Children from Environmental Health Risks and Safety Risks."[5]

   a. As the OIRA Administrator, were you personally aware that the rule would be downgraded from "economically significant"? If yes, when?

      Answer: OIRA works with each agency as early as possible to discuss EO 12866 significance designations of rules. During the EO 12866 interagency review process, additional information may be shared bearing on that designation. In

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[2] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2406.
[3] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2402.
[4] *See id.* (showing a 12:05pm, 11/8/2017 change from "an economically significant regulatory action" to merely "a significant regulatory action").
[5] *See id.* (showing a 12:16pm, 11/8/2017 change in characterization of the proposal from "an economically significant regulatory action" to "not an economically significant regulatory action").

some circumstances that information leads to a change in designation between submission and conclusion of a regulatory action.

b. Under your leadership at OIRA, is it common practice to make decisions the day before signature on whether a rule is economically significant?

Answer: Designation decisions involve extensive discussions between OIRA and other Federal agencies during the period of EO 12866 review. Changes in the text reflect decisions and edits made over the course of the review period, even though they may be compiled and posted on a single date.

c. Are you aware of any other instances in which the economic significant of a rule was downgraded the day before signature? If so, please list and briefly describe each of them.

Answer: While in most cases it is clear at the time of submission whether a rule is economically significant, sometimes this determination changes during interagency review of the rule. In addition, the designation sometimes changes between the proposed and final rule based on public comments.

d. As you know, under E.O. 12866, "economically significant" regulatory actions include those having an annual effect on the economy, environment, or public health and safety of at least $100 million. In 2016, EPA estimated that unrestricted glider vehicles impose $6 to $14 billion in annual costs on society. *See* 81 FR at 73,943. The proposed repeal would exempt new glider vehicles from Clean Air Act regulation. On what basis did EPA and/or OIRA determine that the proposed rule is not an economically significant regulatory action under E.O. 12866?

Answer: The estimate referenced above provides a range of air quality benefits that assumed all glider vehicles were required to comply with the new standards; however, not all glider vehicles were required to comply with the 2016 final rule. In section 12.4 of EPA's Regulatory Impact Analysis for the 2016 final rulemaking, the agency states that the vast majority of the glider manufacturers would qualify as small businesses. Small businesses were granted exemptions from the new glider standards up to a certain production number. As EPA did not have accurate numbers for the production of gliders by small businesses who would be exempted, the agency did not separate the estimated costs and benefits for the glider portion of the rulemaking.

e. Because the original Phase 2 Rule was itself deemed economically significant, EPA evaluated that rule's impact on the environmental health risks and safety risks to children, pursuant to E.O. 13045. *See* 81 FR at 73966–67. Among many other things, that analysis discussed how children's physiology, breathing rates, brain and body development, and behavior increase their susceptibility to air pollution compared to adults. For example, infants breathe five times faster than

adults, breathe more through their mouths, and have less ability to remove pollutants inhaled through their nasal passages, a larger fraction of the soot and other pollutants they inhale is deposited in their lungs. *Id.* at 73967. Children are more susceptible to developing cancer tumors than adults are, and early-life exposure to carcinogenic vehicle pollution puts them at a higher risk of developing cancer later in life. *Id.* Children who live by the roadways these unregulated glider vehicles would travel are more likely to develop asthma and, after that, more likely to suffer asthma attacks when they literally struggle to breathe—a frightening feeling for anyone, all the more for a small child. On top of that, children's susceptibility is further increased because they spend more time outdoors. *Id.* In the notice of proposed repeal of emission standards for glider vehicles, the section on E.O. 13045 merely asserts, without any further analysis or apparent concern, that "Some of the benefits for children's health as described in the [Phase 2 Rule] would be lost as a result of this action." As if highlighting the total lack of concern for human health, the next (and final) paragraph talks about criteria pollution reduction under *the Clean Power Plan* — most likely a sloppy copy/paste job that illuminates the level of concern with which your office reviewed this notice. Under your leadership at OIRA, would this analysis have been adequate to satisfy E.O. 13045 if the rule had remained economically significant?

Answer: For economically significant rules that may have a disproportionate impact on health and safety risks to children, agencies are required to conduct a meaningful analysis of those risks. In the 2016 rule, EPA concluded that it was justified to exempt many glider kits from the emissions requirements. Agencies often conduct a more thorough and detailed analysis of impacts at the final rule stage, after they have received comments from the public.

7. The Phase 2 Heavy Duty rule established regulations emission standards under Clean Air Act section 201. On August 8, 2017, EPA announced "its intent to revisit provisions of the Phase 2 Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines"—specifically, the "updated standards" as applied to "gliders."[6] EPA reiterated this message in a press release accompanying Administrator Pruitt's signature of the proposed repeal on November 9, 2017.[7] Clean Air section 317 provides that, before publishing a proposed rule revising "any regulation establishing emission standards under section [201 of the Clean Air Act] and any other regulation promulgated under that section,"[8] the Administrator "shall prepare an economic impact assessment respecting such standard or regulation . . . ."[9] Not only must that economic impact assessment be placed in the rulemaking docket, but the "[n]otice of proposed

[6] https://www.epa.gov/newsreleases/epa-announces-intent-revisit-provisions-phase-2-heavy-duty-rules.

[7] https://www.epa.gov/newsreleases/administrator-pruitt-advances-effort-keep-epa-within-regulatory-lane-proposed-repeal.

[8] 42 U.S.C. § 7617(a)(5).

[9] 42 U.S.C. § 7617(b).

rulemaking" itself must "include notice of [the] availability" of that assessment and "an explanation of the extent and manner in which the Administrator has considered the analysis contained in such an economic impact assessment in proposing the action."[10] The rulemaking docket includes a memorandum purporting to contain the analysis required under CAA section 317 titled, "Assessment of Economic Factors Associated with the Proposed Repeal of Emissions Requirements" for gliders.[11]

a. The memorandum is dated November 16, 2017. The Administrator signed the proposal on November 9, 2017. Was OIRA aware of this memorandum prior to the Administrator signing the proposal?
b. The memorandum states, "In many rulemakings promulgated under Section 202, EPA would address the above topics in the Draft Regulatory Impact Analysis (RIA) document prepared to support a Notice of Proposed Rulemaking. However, EPA is not including a Draft RIA for this proposed rule." Why did EPA not develop a Draft RIA for the proposed repeal of glider requirements? How does your office decide whether a Draft RIA should be developed for a proposed rule?
c. Where is this memorandum cited in the "notice of proposed rulemaking," as required by Clean Air Act section 317? Given that OIRA's role is to ensure that agencies comply with legally required economic analyses, will you ensure that EPA fixes this legal defect does not finalize the proposed repeal based on a legally defective proposal?
d. Extraordinarily, the memorandum's perfunctory economic assessment states that while EPA considered information submitted as part of the original Phase 2 rulemaking, "EPA did not, however, consider this economic impact assessment itself in proposing this action."[12] Does OIRA typically encourage agencies to prepare economic assessments of proposed rulemakings that the agency will "not consider" when proposing the action? Absent a statutory command to ignore costs, why would EPA assess the economic impacts of a proposed rule but ignore the substance of that assessment?

Answers a-d: OIRA will review with the agency how best to address the need for appropriate economic analysis in any final rulemaking.

8. Last year, the Department of Labor proposed a rule to weaken beryllium exposure standards for workers in a subset of industries otherwise regulated by the rule. *See* 82 FR 29182. In its notice, the Department of Labor made clear that although it was exempting two industrial standards from the rule, it was still required to go through the Paperwork Reduction Act (PRA) process because revocation of the rule would revoke the rule's requirement to collect information from those industries. The Department of Labor explained that, "Under the PRA, a Federal agency cannot conduct or sponsor a collection of information unless OMB approves it, and the agency displays a currently valid OMB control number (44 U.S.C. 3507)." Accordingly, OSHA submitted a revised Information

[10] *Id.*
[11] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2407.
[12] *Id.* at 2.

Collection Request to OMB, and solicited comment on a number of topics related to "the removal of the collection of information requirements." That rule was proposed on June 27, 2017, before you were confirmed as OIRA Administrator.

a. The Phase 2 Rule included a number of reporting and recordkeeping requirements, which OMB approved pursuant to the PRA. *See* 81 FR at 74155. As with OSHA's partial repeal of beryllium standards for a subset of regulated industries, the proposed repeal of the glider requirements would repeal the Phase 2 standards for a subset of regulated industries. Despite that, the proposed glider repeal asserts that the requirements of the PRA do not apply. *See* 81 FR at 53448. For Paperwork Reduction Act purposes, what is the substantive or legal difference between these two rules?

Answer: The Paperwork Reduction Act requirements apply to the Heavy Duty Phase 2 rulemaking. The information collection requirements in the Phase 2 final rule were pending review at the time of the reconsidered proposal on glider kits. EPA chose to withdraw the collections in light of the new proposal.

b. Has OIRA's policy regarding PRA approval changed since you became OIRA Administrator? If so, did you order that change? If so, why?

Answer: No, OIRA's policy regarding PRA approval has not changed since I became Administrator.

9. On July 13, 2017 I wrote to you with a series of questions regarding your view on OIRA's role in several regulatory and information collecting policy matters.[13] To date, I have not received a response to this letter. Please provide an update on the status of the response to this letter.

Answer: Please find a response attached.

[13] Senator Tom Carper to Administrator Neomi Rao, July 13 2017.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

July 6, 2018

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Conditional No Action Assurance Regarding Small Manufacturers of Glider Vehicles

FROM: Susan Parker Bodine
Assistant Administrator
Office of Enforcement and Compliance Assurance

TO: Bill Wehrum
Assistant Administrator
Office of Air and Radiation

Pursuant to your attached request of July 6, 2018, I am today providing a "no action assurance" relating to: (1) those small manufacturers to which 40 C.F.R. § 1037.150(t) applies that either are manufacturing or that have manufactured glider vehicles in calendar year 2018 (Small Manufacturers); and (2) to those companies to which 40 C.F.R. § 1037.150(t)(1)(vii) applies that sell glider kits to such Small Manufacturers (Suppliers).

As noted in your memorandum, in conjunction with EPA's having promulgated in 2016 the final rule entitled Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, *see* 81 Fed. Reg. 73,478 (Oct. 25, 2016) (the HD Phase 2 Rule), the Agency specified that glider vehicles were "new motor vehicles" (and glider vehicle engines to be "new motor vehicle engines") within the meaning of 42 U.S.C. § 7550(3). Effective January 1, 2017, Small Manufacturers were permitted to manufacture glider vehicles in 2017 in the amount of the greatest number produced in any one year during the period of 2010–2014 without having to meet the requirements of 40 C.F.R. § 1037.635 (Interim Allowance). After this transitional period, beginning on January 1, 2018, small manufacturers of glider vehicles have been precluded from manufacturing more than 300 glider vehicles (or fewer, if a particular manufacturer's highest annual production volume between 2010 and 2014 had been below 300 vehicles), unless they use engines that comply with the emission standards applicable to the model year in which the glider vehicle is manufactured. On November 16, 2017, EPA published a notice of proposed rulemaking, proposing to repeal the emissions standards and other requirements of the HD Phase 2 Rule as they apply to glider vehicles, glider engines, and glider kits. *See* 82 Fed. Reg. 53,442 (Nov. 16, 2017) (November 16 NPRM).

We understand that after taking into consideration the public comments received, and following further engagement with stakeholders and other interested entities, the Office of Air and Radiation (OAR) has determined that additional evaluation of several matters is required before it can take final action on the November 16 NPRM. Consequently, OAR now recognizes that finalizing the November 16 NPRM will require more time than it had previously anticipated. In the meantime, Small Manufacturers who, in reliance on the November 16 NPRM, have reached their calendar year 2018 annual allocation under the HD Phase 2 Rule must cease production for the remainder of calendar year 2018 of additional glider vehicles, resulting in the loss of jobs and threatening the viability of these Small Manufacturers.

As noted in your memorandum, OAR now intends to move as expeditiously as possible to undertake rulemaking in which it will consider extending the compliance date applicable to Small Manufacturers to December 31, 2019.

Consistent with the intent and purpose of OAR's planned course of action, this no action assurance provides that EPA will exercise its enforcement discretion with respect to the applicability of 40 C.F.R. § 1037.635 to Small Manufacturers that in 2018 and 2019 produce for each of those two years up to the level of their Interim Allowances as was available to them in calendar year 2017 under 40 C.F.R. § 1037.150(t)(3). This no action assurance further provides that EPA will exercise its enforcement discretion with respect to Suppliers that sell glider kits to those Small Manufacturers to which this no action assurance applies. This no action assurance will remain in effect until the earlier of: (1) 11:59 p.m. (EDT), July 6, 2019; or (2) the effective date of a final rule extending the compliance date applicable to small manufacturers of glider vehicles.

The issuance of this no action assurance is in the public interest to avoid profound disruptions to small businesses while EPA completes its reconsideration of the HD Phase 2 Rule. The EPA reserves its right to revoke or modify this no action assurance.

If you have further questions regarding this matter, please contact Rosemarie Kelley of my staff at (202) 564--4014, or kelley rosemarie@epa.gov.

Attachment

cc: Byron Bunker, OAR, OTAQ
Rosemarie Kelley, OECA, OCE
Phillip Brooks, OECA, OCE, AED

MEMORANDUM

SUBJECT: Enforcement Discretion Regarding Companies that Are Producing or that Have Produced Glider Vehicles in Calendar Year 2018

FROM: Bill Wehrum
Assistant Administrator
Office of Air and Radiation

7-6-18

TO: Susan Parker Bodine
Assistant Administrator
Office of Enforcement and Compliance Assurance

The Office of Air and Radiation (OAR) requests that the Office of Enforcement and Compliance Assurance (OECA) exercise enforcement discretion (No Action Assurance) with respect to both those small manufacturers to which 40 C.F.R. § 1037.150(t) applies that either are manufacturing or that have manufactured glider vehicles in calendar year 2018 (Small Manufacturers), and to those companies to which 40 C.F.R. § 1037.150(t)(1)(vii) applies that sell glider kits to such small manufacturers (Suppliers). Specifically, as a bridge to a rulemaking in which we will consider extending the deadline for Small Manufacturers to comply with 40 C.F.R. § 1037.635, OAR requests that OECA provide assurance that it will exercise enforcement discretion for up to one year with respect to the applicability to Small Manufacturers and their Suppliers of 40 C.F.R. §1037.635. Further, OAR requests that OECA provide assurance that it will not take enforcement action against those Suppliers that elect to sell glider kits to those Small Manufacturers of glider vehicles to which this No Action Assurance applies.

In conjunction with EPA's having promulgated in 2016 the final rule entitled Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles-Phase 2, 81 Fed. Reg. 73,478 (Oct. 25, 2016) (the HD Phase 2 Rule), the Agency clarified that glider vehicles were "new motor vehicles" (and glider vehicle engines to be "new motor vehicle engines") within the meaning of 42 U.S.C. § 7550(3). EPA in the HD Phase 2 Rule also stated that glider kits constituted "incomplete motor vehicles." Effective January 1, 2017, Small Manufacturers were permitted to manufacture glider vehicles in 2017 in the amount of the greatest number produced in any one year during the period 2010-2014 without meeting the requirements of 40 C.F.R. § 1037.635 (Interim Allowance). After this transitional period, beginning on January 1, 2018, small manufacturers of glider vehicles have been precluded from manufacturing more than 300 glider vehicles (or fewer, if a particular manufacturer's highest annual production volume from between 2010 and 2014 had been below 300 vehicles), unless they use engines that comply with the emission standards applicable to the model year in which the glider vehicle is manufactured.

On November 16, 2017, EPA published in the *Federal Register* a notice of proposed rulemaking, proposing to repeal the emissions standards and other requirements of the HD Phase 2 Rule as they apply to glider vehicles, glider engines, and glider kits. 82 Fed. Reg. 53,442 (Nov. 16, 2017) (November 16 NPRM). In the November 16 NPRM, EPA proposed an 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). EPA also sought comment on whether, were it not to promulgate this proposed interpretation of the CAA, the Agency should increase the interim provision's allocation available to small manufacturers above the current applicable limits (*i.e.*, at most, 300 glider vehicles per year). 82 Fed. Reg. 53,447. Further, EPA solicited comment on whether the compliance date for glider vehicles and glider kits set forth at 40 C.F.R. § 1037.635 should be extended. *Id.*

After taking into consideration the public comments received, and following further engagement with stakeholders and other interested entities, OAR has determined that additional evaluation of a number of matters is required before it can take final action on the November 16 NPRM. As a consequence, OAR now recognizes that finalizing the November 16 NPRM will require more time than we had previously anticipated.

OAR intends to complete this rulemaking as expeditiously as possible under these circumstances, consistent with the Agency's responsibility to ensure that whatever final action it may take conforms with the Clean Air Act and is based on reasoned decision making. In the meantime, while the emissions standards and other requirements of the 2016 Rule applicable to glider vehicles became effective on January 1, 2017, and the Interim Allowance for calendar year 2017 ceased to apply as of January 1, 2018. As a consequence, Small Manufacturers who, in reliance on the November 16 NPRM, have reached their calendar year 2018 interim annual allocation under the HD Phase 2 Rule must cease production for the remainder of 2018, resulting in the loss of jobs and threatening the viability of these Small Manufacturers.

In light of these circumstances, OAR now intends to move as expeditiously as possible to undertake rulemaking to consider extending the compliance date applicable to Small Manufacturers until December 31, 2019. Concurrently, we intend to continue to work towards expeditiously completing a final rule. OAR requests a No Action Assurance in order to preserve the status quo as it was at the time of the November 16 NPRM until such time as we are able to take final action on extending the applicable compliance date. Specifically, OAR requests that OECA exercise its enforcement discretion with respect to Small Manufacturers who in 2018 and 2019 produce for each of those two years up to the level of their Interim Allowance as was available to them in 2017 under 40 C.F.R. § 1037.150(t)(3). OAR requests that OECA leave this No Action Assurance in place for one year from the date of issuance, or until such time as EPA takes final action to extend the compliance date, whichever comes sooner.

I appreciate your prompt consideration of this request.

October 23, 2018

Administrator
Environmental Protection Agency
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
MAIL CODE: 1101A
Washington, DC 20460

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Dear Sir:

In a letter to Congressman Diane Black on June 15, 2017, representatives of Tennessee Technological University ("Tennessee Tech") shared the results of research that had been performed by the university related to the subject topic. On February 19, 2018, Tennessee Tech President Philip Oldham notified the EPA Administrator, Congressman Black, and the sponsor of the subject research that the university was investigating the methodology and accuracy of the study, and President Oldham requested the recipients to withhold any use or reference to the study pending the conclusion of Tennessee Tech's internal investigations.

The university has concluded its internal investigation and has found that certain conclusions reported in the June 2017 letter were not accurate. Specifically, the letter stated that, "*The results of the emissions test were compared with the 2010 EPA emissions standards for HDVs. Our research showed that optimized and remanufactured 2002-2007 engines and OEM 'certified' engines performed equally as well and in some instances out-performed the OEM engines.*" The university has determined that this statement is inaccurate in two respects. First, the field-testing procedures used by Tennessee Tech in this research effort were not sufficient to justify comparisons with EPA emissions standards. Second, following a review of the supporting data for these statements, Tennessee Tech has determined that the data does not support the statement that optimized and remanufactured engines performed equally as well as OEM "certified" engines.

The intent of the subject research was to conduct relative comparisons of emissions from OEM engines and engines remanufactured with the sponsoring company's glider kits. These tests were intended only to establish a baseline comparison of the two groups of engines. The university's review of the research has found that the research itself was methodologically sound, and that the methods, methodology, and measurements used were appropriate for the project based upon the project's original intent.

It is the desire of every individual involved with Tennessee Tech that we maintain the highest degree of integrity in everything that we do, especially in scholarly endeavors that lead to informing public policy. We take our responsibility in this area very seriously, and we sincerely regret the inconvenience caused by the inaccuracies in the June 2017 letter.

Sincerely,

Trudy Harper
Vice Chairman of the Board of Trustees, Tennessee Technological University

cc: Congressman Diane Black
Mr. Tommy C. Fitzgerald, Fitzgerald Glider Kits