ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 85, 86, 600, 1036, 1037, and 1039

[EPA–HQ–OAR–2025–0194; FRL–12715–01–OAR]

RIN 2060–AW71

Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: In this action, the U.S. Environmental Protection Agency (EPA) is proposing to repeal all greenhouse gas (GHG) emission standards for light-duty, medium-duty, and heavy-duty vehicles and engines to effectuate the best reading of Clean Air Act (CAA) section 202(a). We propose that CAA section 202(a) does not authorize the EPA to prescribe emission standards to address global climate change concerns and, on that basis, propose to rescind the Administrator's prior findings in 2009 that GHG emissions from new motor vehicles and engines contribute to air pollution which may endanger public health or welfare. We further propose, in the alternative, to rescind the Administrator's prior findings in 2009 because the EPA unreasonably analyzed the scientific record and because developments cast significant doubt on the reliability of the findings. Lastly, we propose to repeal all GHG emission standards on the alternative bases that no requisite technology for vehicle and engine emission control can address the global climate change concerns identified in the findings without risking greater harms to public health and welfare.

DATES:

Comments. Comments must be received on or before September 15, 2025. Comments on the information collection provisions submitted to the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA) are best assured of consideration by OMB if OMB receives a copy of your comments on or before September 2, 2025.

Public Hearing. The EPA will announce information regarding the public hearing for this proposal in a supplemental **Federal Register** document. Please refer to the **SUPPLEMENTARY INFORMATION** section for additional information on the public hearing.

ADDRESSES: *Comments.* You may send comments, identified by Docket ID No. EPA–HQ–OAR–2025–0194, by any of the following methods:

- *Federal eRulemaking Portal: https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.
- *Email: a-and-r-Docket@epa.gov.* Include Docket ID No. EPA–HQ–OAR–2025–0194 in the subject line of the message.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, OAR Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand Delivery or Courier:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions. All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov/,* including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the ''Public Participation'' heading of the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Alan Stout, Assessment and Standards Division, Office of Transportation and Air Quality, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214–4805; email address: *stout.alan@epa.gov.*

SUPPLEMENTARY INFORMATION:

A. Public Participation

Written Comments. Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2025–0194, at *https://www.regulations.gov* (our preferred method), or the other methods identified in the **ADDRESSES** section. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit to the EPA's docket at *https://www.regulations.gov* any information you consider to be Confidential Business Information (CBI), Proprietary Business Information (PBI), or other information whose disclosure is restricted by statute. If you choose to submit CBI or PBI as a comment to the EPA's docket, please send those materials to the person listed in the **FOR FURTHER INFORMATION CONTACT** section. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered an 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). Please visit *https://www.epa.gov/dockets/commenting-epa-dockets* for additional submission methods; the full EPA public comment policy; information about CBI, PBI, or multimedia submissions; and general guidance on making effective comments.

To facilitate comment on the portions of the rule on which the EPA is specifically soliciting comment, the EPA has indexed each comment solicitation with a unique identifier (*e.g.,* ''C–1'', ''C–2'') in section VII of this preamble to provide a consistent framework for effective and efficient provision of comments. Accordingly, we ask that commenters include the corresponding identifier when providing comments relevant to that comment solicitation. We ask that commenters include the identifier either in a heading or within the text of each comment, to make clear which comment solicitation is being addressed. We note that we are not limiting comment to these identified areas.

Participation in Virtual Public Hearing. The EPA will announce information regarding the public hearing for this proposal in a supplemental document in the **Federal Register**. The hearing notice, registration information, and any updates to the hearing schedule will also be available at *https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-reconsideration-2009-endangerment-finding.* Please refer to this website for any updates regarding the hearings. The EPA does not intend to publish additional documents in the **Federal Register** announcing updates to the hearing schedule.

Docket. All documents in the docket are listed on the *www.regulations.gov* website. Although listed in the index, some information is not publicly available, *e.g.,* CBI 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 through the EPA Docket Center at the location listed in the **ADDRESSES** section of this document.

B. Action Applicability

This action relates to companies that manufacture, sell, or import into the United States light-, medium-, or heavy-duty motor vehicles and engines. Potentially affected categories and entities include the following:

NAICS code [a]	NAICS title
336110	Automobile and Light-duty Motor Vehicle Manufacturing.
336120	Heavy Duty Truck Manufacturing.
336211	Motor Vehicle Body Manufacturing.
336213	Motor Home Manufacturing.
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing.
336390	Other Motor Vehicle Parts Manufacturing.
333618	Other Engine Equipment Manufacturing.
423110	Automobile and Other Motor Vehicle Merchant Wholesalers.
811198	All Other Automotive Repair and Maintenance.

[a] NAICS Association. NAICS & SIC Identification Tools. Available online: *https://www.naics.com/search.*

This table is not intended to be exhaustive but rather provides a guide for readers regarding entities potentially affected by this action. This table lists the types of entities that the EPA is presently aware could potentially be affected by this action. Other types of entities not listed in the table could also be affected. To determine whether your entity is regulated by this action, you should carefully examine the applicability criteria found in Code of Federal Regulations (CFR) title 40, parts 85, 86, 600, 1036, and 1037. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

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I. Executive Summary

A. Introduction

In this action, the EPA proposes to rescind all greenhouse gas (GHG) emission standards for light-duty, medium-duty, and heavy-duty vehicles and engines under CAA section 202(a). Upon review of the underlying actions and intervening legal and scientific developments, including recent decisions by the U.S. Supreme Court and the scientific information summarized in this preamble, the EPA no longer believes that we have the statutory authority and record basis required to maintain this novel and transformative regulatory program. We seek comment on all aspects of this proposal, including on the legal and scientific developments that are being subject to public comment for the first time in this rulemaking.

In 2009, the EPA took the unprecedented step of asserting authority to regulate GHG emissions in a standalone action titled ''Endangerment and Cause or Contribute Finding for Greenhouse Gases Under Section 202(a) of the Clean Air Act,'' 74 FR 66496 (Dec. 15, 2009) (Endangerment Finding). In that action, we interpreted CAA section 202(a) for the first time to authorize regulation of domestic emissions from new motor vehicles and engines based on global climate change concerns rather than air pollution that endangers public health or welfare through local or regional exposure. 74 FR 66526–27. We also asserted that because the statute is ''silent on [the] issue,'' CAA section 202(a) grants ''procedural discretion'' to issue standalone findings that trigger a duty to regulate without considering the standards that must issue in response.

74 FR 66501–02. The Administrator exercised this newfound discretion to make separate findings that elevated global concentrations in the upper atmosphere of six ''well-mixed GHGs''—carbon dioxide (CO_2), methane, nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—constitute ''air pollution'' that may reasonably be anticipated to endanger public health and welfare, 74 FR 66516–36, and that GHG emissions from all potential classes of motor vehicles and engines contribute to such elevated global concentrations of GHGs in the upper atmosphere and therefore to air pollution that endangers public health and welfare, 74 FR 66536–45.

With respect to endangerment, the Administrator found that global concentrations of GHGs from all foreign and domestic sources ''constitute the largest anthropogenic driver of climate change'' and attributed climate change impacts to global GHG concentrations. 74 FR 66517. Next, the Administrator summarized literature reviews finding that climate change ''can increase the risk of morbidity and mortality'' indirectly through increased global temperature, air quality effects, and changes in extreme weather events and can impact welfare indirectly through net impacts on food production, forestry, water resources, sea level rise, energy infrastructure, and ecosystems. 74 FR 66522–35. On that basis, the Administrator found that global concentrations of GHGs constitute ''air pollution'' that endangers public health and welfare. 74 FR 66516. For purposes of this preamble, we use the phrase global climate change concerns to refer to the risks the Administrator associated with climate change in 2009.

With respect to causation or contribution, the Administrator used emissions data for existing motor vehicles and engines to project that all potential classes of new motor vehicles and engines would emit four GHGs—CO_2, methane, N_2O, and HFCs—that would collectively amount to 4.3 percent of global GHG emissions. 74 FR 66543. The Administrator acknowledged that more would usually be required to support contribution ''when addressing a more typical local or regional air pollution problem.'' 74 FR 66539. Nevertheless, asserting discretion to interpret the ambiguous term ''contribute,'' the Administrator found that the ''unique'' nature of global climate change meant that ''contributors must do their part even if their contributions to the global climate change problem, measured in terms of percentage, are smaller than typically encountered when tackling solely regional or local environmental issues.'' 74 FR 66542–43.

The EPA subsequently relied on the Endangerment Finding to impose increasingly stringent GHG emission standards for new motor vehicles and engines and to attempt, largely without success, to extend its GHG initiative into additional CAA programs. In *Utility Air Regulatory Group* v. *EPA,* 573 U.S. 302 (2014) (*UARG*), the Supreme Court rejected our attempt to extend GHG emission standards to stationary sources subject to Title I and Title V requirements, including after we admitted that applying the statutory scheme as written to GHG emissions from most covered stationary sources would be unworkable. And in *West Virginia* v. *EPA,* 597 U.S. 697 (2022), the Court vacated our attempt to shift the power grid away from using fossil fuels through GHG standards for existing power plants under CAA section 111(d). The Court held in both cases that the agency actions at issue implicated the major questions doctrine, and that Congress must clearly authorize agencies to take actions that decide major questions of policy. Nevertheless, the EPA continued to retain and expand GHG emission standards for new motor vehicles and engines that impose billions of dollars in compliance costs on American businesses and consumers. Meanwhile, global GHG concentrations in the upper atmosphere have continued to rise, driven primarily by increased emissions from foreign sources,[1] all without producing the degree of adverse impacts to public health and welfare in the United States that the EPA anticipated in the 2009 Endangerment Finding.

The EPA now proposes to rescind the Endangerment Finding and all resulting GHG emission standards for new motor vehicles and engines, including the light-duty, medium-duty, and heavy-duty vehicle and engine standards for model years (MY) 2012 to 2027 and beyond. The remainder of this section describes the need for regulatory action and the scope of the proposed action, including rescission of the Endangerment Finding, repeal of related GHG emission standards, and minor conforming adjustments to unrelated emission standards for new motor vehicles and engines that we are not proposing to alter as part of this rulemaking.

Section II of this preamble sets out relevant background, including the events leading up to the Endangerment Finding, the approach taken in the Endangerment Finding to analyzing the scientific record, and the regulations issued since 2009 in reliance on the Endangerment Finding. We also summarize the premises, assumptions, and conclusions in the Endangerment Finding and the scientific information, including empirical data, peer-reviewed studies, and real-world developments since 2009 that led the Administrator to develop concerns sufficient to initiate reconsideration of the ongoing validity and reliability of the Endangerment Finding.

Section III of this preamble describes our legal authority to rescind the Endangerment Finding and repeal the resulting GHG standards issued under CAA section 202(a). Because this proposed action would not impact fuel economy standards and emission standards for criteria pollutants and hazardous air pollutants regulated under the CAA, we explain the relationship between these regulations to set the outer bounds of amendments at issue in this rulemaking.

Section IV.A of this preamble describes our proposal to rescind these prior actions because the Endangerment Finding exceeded our statutory authority under CAA section 202(a). As explained further below, we propose that the term ''air pollution'' as used in CAA section 202(a) is best read in context as referring to local or regional exposure to dangerous air pollution, consistent with our longstanding practice before 2009. We further propose that CAA section 202(a) does not grant the Administrator ''procedural discretion'' to issue standalone findings that trigger a duty to regulate, or, conversely, to prescribe standards, without making the requisite findings for the particular air pollutant emissions and class or classes of new motor vehicles or engines at issue. We also propose that CAA section 202(a) does not authorize the Administrator to make separate findings for endangerment and causation or contribution. Rather, we propose that CAA section 202(a) requires the Administrator to find that the relevant air pollutant emissions from the class or classes of new motor vehicles or engines at issue cause, or contribute to, air pollution which endangers public health or welfare, without relying on emissions from stationary or other sources regulated by distinct CAA provisions. As the Supreme Court made clear in *Loper Bright Enterprises* v. *Raimondo,* 603 U.S. 369 (2024), we can no longer rely on statutory silence or ambiguity to expand our regulatory power. And

[1] Crippa, M. et al. (2023). GHG emissions of all world countries. *Publications Office of the European Union: https://doi.org/10.2760/953322.*

because the Nation's response to global climate change concerns is an issue of significant importance that Congress did not clearly address in CAA section 202(a), we propose that the major questions doctrine further reinforces and provides an additional basis for our proposed interpretations and actions. The Agency did not have the benefit of the Court's decisions in *Loper Bright* and *West Virginia,* among other applicable precedents, when issuing the Endangerment Finding in 2009. Finally, we explain that the EPA reached contrary conclusions in the Endangerment Finding by misconstruing the Supreme Court's decision in *Massachusetts* v. *EPA,* 549 U.S. 497 (2007), which vacated our denial of a petition for rulemaking on distinct grounds. Read on its own terms, *Massachusetts* did not require the Agency to find that GHGs are subject to regulation under CAA section 202(a) and does not support our implementation of the statute since 2009.

Section IV.B of this preamble describes our alternative proposal to rescind these prior actions even if CAA section 202(a) authorizes the EPA to address GHG emissions based on global climate change concerns by concluding that the Administrator exercised that authority unreasonably in the Endangerment Finding. Specifically, we propose that the EPA misapplied the statutory standard for regulation to the scientific record by severing the analysis into separate parts without considering whether all parts of the analysis, taken as a whole, supported the findings and regulatory determinations required by the statute. We further propose that empirical data, peer-reviewed studies, and real-world developments since 2009 have cast significant doubt on many of the critical premises, assumptions, and conclusions in the Endangerment Finding such that it would be unreasonable to retain the decision and the resulting regulatory framework. In proposing this alternative, we note that the Supreme Court has continued to emphasize that agencies have significant discretion when making complex judgments within the bounds of an authorizing statute.[2] We propose that the Administrator may now exercise the discretion expressly delegated to him by Congress in the text of CAA section 202(a) by rescinding the Endangerment Finding.

Section V of this preamble proposes additional bases for repealing the EPA's GHG emission standards for new motor vehicles and engines under CAA section 202(a) even if the Endangerment Finding were to remain in place. We propose that there is no ''requisite technology'' responsive to the global climate change concerns identified in the Endangerment Finding given evidence that reducing GHG emissions from new motor vehicles and engines to zero would not have a scientifically measurable impact on global GHG concentrations and climate trends. We also propose that, on balance, and contrary to the core objectives of CAA section 202(a), GHG emission standards harm public health and welfare by increasing prices, decreasing consumer choice, and slowing the replacement of older vehicles that are less safe and emit a greater volume and variety of air pollutants than new motor vehicles and engines.

Section VI of this preamble details the scope of the proposed repeal, including its relationship to distinct regulatory programs and federal preemption, the revisions to 40 CFR parts 85, 86, 600, 1036, 1037, and 1039 required to effectuate repeal of all GHG emission standards, and conforming adjustments to regulatory provisions that we are not proposing to reopen or substantively revise. Specifically, in this NPRM we are not proposing to change at this time elements of the regulations that are necessary for programs unrelated to the Endangerment Finding, including emission standards for criteria pollutants and air hazards and the EPA's statutory role in vehicle standards administered by the National Highway Traffic Safety Administration (NHTSA).

Section VII of this preamble specifically requests comment on key aspects of this proposed action and indexes comment solicitation to promote public participation and facilitate our review of public comments. Note that we are not limiting public participation to the issues raised in this section and will respond to all comments within the scope of this proposal. Rather, we are highlighting aspects of the proposal for which public input would be particularly helpful in determining whether and in what respects to finalize this proposed action.

B. Need for Regulatory Action

Immediately upon taking office, President Trump established new Executive Branch priorities for energy, transportation, and consumer choice and committed to ensuring regulations remain within constitutional and statutory bounds. On January 20, 2025, the President issued an Executive Order titled ''Unleashing American Energy'' to address the burdens placed by unnecessary regulations on energy affordability, job creation, and national security.[3] As relevant here, the President directed the EPA Administrator to submit recommendations to the Director of OMB on the legality and continuing applicability of the 2009 Endangerment Finding.[4] On February 19, 2025, the President issued an Executive Order titled ''Ensuring Lawful Governance and Implementing the President's 'Department of Government Efficiency' Deregulatory Initiative'' that further instructed agencies, including the EPA, to review existing regulations for consistency with the Constitution and the best reading of the authorizing statute.[5]

Upon confirmation by the Senate, Administrator Lee Zeldin committed the EPA to prioritizing its core statutory mission and ensuring that all regulatory actions are clearly grounded in statutory authority and the best reading of the law. As part of these efforts, and consistent with the ''Unleashing American Energy'' Executive Order, the Administrator initiated a review of the legality and applicability of the Endangerment Finding. On February 19, 2025, the Administrator submitted a memorandum to the OMB Director recommending that the EPA reconsider the Endangerment Finding to address legal and scientific developments that appear to undermine the bases for that action and subsequent regulations.[6] The Administrator noted that recent Supreme Court decisions, including *Loper Bright, West Virginia, UARG,* and *Michigan* v. *EPA,* 576 U.S. 743 (2015), provided new guidance on how we should interpret and apply the statutes Congress entrusted us to administer.[7] The Administrator further noted that the Endangerment Finding recognized significant uncertainties in its conclusions and assumptions that should be evaluated in light of more recent empirical data and scientific

[2] *Seven Cnty. Infrastructure Coal.* v. *Eagle Cnty.,* 145 S. Ct. 1497, 1511–15 (2025); *FDA* v. *Wages & White Lion Invs., L.L.C.,* 145 S. Ct. 898, 917 (2025); *Baltimore Gas & Elec. Co.* v. *NRDC, Inc.,* 462 U.S. 87, 103 (1983); *see also Huntsman Petrochemical LLC* v. *EPA,* 114 F.4th 727, 735 (D.C. Cir. 2024) (''In the case of EPA's evaluation of scientific data within its area of expertise, [courts] accord an extreme degree of deference.'' (quotation marks omitted)).

[3] Executive Order 14154, 90 FR 8353 (Jan. 29, 2025).

[4] *Id.* § 6(f).

[5] Executive Order 14219, 90 FR 10583 (Feb. 25, 2025).

[6] Memorandum from Lee Zeldin, Administrator, Environmental Protection Agency, to Russell Vought, Director, Office of Management and Budget (Feb. 19, 2025) (Feb. 19, 2025 Memo), available in the docket for this rulemaking.

[7] *Id.* at 1.

evidence.[8] Accordingly, the Administrator announced on March 12, 2025, that the EPA would reconsider the Endangerment Finding and subsequent actions to determine whether our GHG regulations have an adequate statutory basis and to seek public input on developments since 2009.[9]

As part of this reconsideration, the EPA closely examined applicable law, including judicial precedents and interpretive aids bearing on the meaning of CAA section 202(a) and related statutory provisions. We also reviewed actions taken to regulate GHG emissions from new motor vehicles and new motor vehicle engines since 2009, assessed the costs and non-cost adverse impacts of these GHG emission standards, and evaluated the effectiveness of these GHG emission standards in reducing the dangers identified in the Endangerment Finding, that is, in mitigating the impacts anticipated to result from elevated global GHG concentrations in the upper atmosphere.

Furthermore, the Administrator reviewed available information, including the most recently available science, bearing on the assumptions and conclusions in the Endangerment Finding, the impacts of global GHG concentrations on public health and welfare in the United States, and the relative contribution of domestic emissions from new motor vehicles and engines to global GHG concentrations. As part of that review, the Administrator received and evaluated the draft report submitted by the U.S. Department of Energy (DOE) Climate Working Group (CWG) to Secretary of Energy Christopher Wright on May 27, 2025, titled ''Impacts of Carbon Dioxide Emissions on the U.S. Climate'' (2025 CWG Draft Report). The 2025 CWG Draft Report analyzes empirical data, peer-reviewed studies, and available scientific information bearing on direct human influence on ecosystems and climate, climate response to CO_2 emissions, and impacts on ecosystems and society.[10] The Administrator also considered available assessments by the U.S. Government and relevant international bodies, including the Third, Fourth, and Fifth National Climate Assessments (NCAs) reported by the U.S. Global Change Research Program (USGCRP) [11] and the Fifth Assessment Report (AR5) and Sixth Assessment Report (AR6) by the United Nations Intergovernmental Panel on Climate Change (IPCC).[12] As discussed in section IV.B of this preamble, the Administrator also considered critiques of the NCAs, and the Fifth NCA in particular, and reviewed these analyses for consistency with OMB information quality guidelines [13] and the transparency and reliability requirements of Executive Order 14303, ''Restoring Gold Standard Science.'' [14]

The Administrator's review of the relevant information, including scientific literature, gave rise to serious concerns that our actions taken to regulate GHG emissions from new motor vehicles and engines exceed our statutory authority under CAA section 202(a) and are otherwise inappropriate. Continuing to impose billions of dollars in regulatory costs on American businesses and consumers without an adequate legal basis would threaten to undermine public confidence in our activities and commitment to fulfilling the Agency's core mission: protecting human health and the environment. The EPA has expended significant resources implementing the GHG regulatory program for mobile sources and attempting to expand its GHG regulatory program to stationary sources with limited success in the courts and no apparent real-world results, often at the expense of programs that fall squarely within our statutory authority. Prompt action is needed to address these concerns with the benefit of public participation.

Relatedly, the Administrator has serious concerns that many of the scientific underpinnings of the Endangerment Finding are materially weaker than previously believed and contradicted by empirical data, peer-reviewed studies, and scientific developments since 2009. This proposal seeks public comment on these developments for the first time. Prompt action is needed to address these concerns, and the Administrator requests stakeholder input on the continuing vitality of the assumptions, predictions, and conclusions animating the Endangerment Finding.

C. Summary of the Major Provisions in This Proposed Action

If finalized, this action would rescind the 2009 Endangerment Finding for GHGs emitted by new motor vehicles and new motor vehicle engines under CAA section 202(a) (74 FR 66496). If finalized, this action would also rescind denials of petitions for reconsideration of the Endangerment Finding in 2022 and 2010 entitled ''Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Action on Petitions,'' 87 FR 25412 (Apr. 29, 2022), and ''EPA's Denial of the Petitions to Reconsider the Endangerment and Cause or Contribute Finding for Greenhouse Gases Under Section 202(a) of the Clean Air Act,'' 75 FR 49556 (Aug. 13, 2010).[15] Although the 2022 and 2010 petition denials have no prospective legal effect, we propose to rescind them for the sake of consistency and to ameliorate potential confusion regarding the EPA's proposed action. As explained later in this preamble, the denials reflect many of the same legal and scientific flaws we propose to correct by rescinding the Endangerment Finding. We seek comment on the impact of the denials, if any, and on whether the denials were legally flawed for additional reasons not explicitly explored in this proposal. In addition, as a result of these proposed changes, we would no longer have a basis for issuing or retaining GHG emission standards for new motor vehicles and new motor vehicle engines, including

[8] *Id.* at 8.

[9] ''Trump EPA Kicks Off Formal Reconsideration of Endangerment Finding with Agency Partners'' (Mar. 12, 2025), available at *https://www.epa.gov/newsreleases/trump-epa-kicks-formal-reconsideration-endangerment-finding-agency-partners*.

[10] The 2025 CWG Draft Report was provided to the EPA on May 27, 2025, and was reviewed and relied upon in formulating this proposal. The EPA understands that DOE is releasing an updated version of the CWG draft report and seeking public comment on the updated report, which includes additional information and typographical corrections that the EPA did not rely upon in formulating this proposal. Interested parties may review and comment on the updated version of the CWG draft report for consideration as part of DOE's efforts through the docket available at *https://www.energy.gov/topics/climate*.

[11] Created by the Global Change Research Act of 1990, Public Law 101–606, 104 Stat. 3096, the USGCRP reports an NCA at least every four years to Congress and the President that must (1) integrate, evaluate, and interpret the findings of the Program and discuss the scientific uncertainties with such findings; (2) analyze the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, human health and welfare, human social systems, and biological diversity; and (3) analyze current trends in global change, both human-induced and natural, and project major trends for the subsequent 25 to 100 years. *See* 15 U.S.C. 2936.

[12] The IPCC invites participation by members of the United Nations and World Meteorological Organization and summarizes available literature on climate science but does not conduct its own research. *See* United Nations Intergovernmental Panel on Climate Change, About the IPCC, available online at *https://www.ipcc.ch/about/*.

[13] ''Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Republication,'' 67 FR 8452 (Feb. 22, 2002).

[14] 90 FR 22601 (May 29, 2025).

[15] The 2022 petition denials included a notice of decision in the **Federal Register** (87 FR 25412), brief letters communicating the denials to the petitioners, and a decision document entitled ''EPA's Denial of Petitions Relating to the Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act'' (Apr. 21, 2022) (2022 Denial), available online at *https://www.epa.gov/system/files/documents/2022-04/decision_document.pdf*.

for MYs that have completed manufacture but are subject to ongoing obligations. As discussed elsewhere in this preamble, the EPA is reconsidering additional endangerment findings and GHG emission standards issued under distinct provisions of the CAA in separate rulemakings and is not reopening or proposing to modify those additional findings and standards in this proceeding.

In connection with the proposed rescission of the Endangerment Finding, if finalized, this action would remove all existing regulations that require new motor vehicle and new motor vehicle engine manufacturers to measure, report, or comply with GHG emission standards. Specifically, the EPA proposes to remove regulations in 40 CFR parts 85, 86, 600, 1036, and 1037 pertaining to the control of GHG emissions from light-, medium-, and heavy-duty vehicles and engines, including emission standards, test procedures, averaging, banking, and trading requirements (ABT), reporting requirements, and fleet-average emission requirements.[16] As a result of these proposed changes, motor vehicle and engine manufacturers would no longer have future or current obligations for the measurement, control, or reporting of GHG emissions for any vehicle or engine, including for previously manufactured MYs. However, we are not proposing to reopen or modify any regulations necessary for criteria pollutant and air toxic measurement and standards, Corporate Average Fuel Economy (CAFE) testing, and associated fuel economy labeling requirements. We seek comment on whether any elements of the regulations, test procedures, or GHG emission models that are proposed for removal should remain to support programs unrelated to the GHG emission standards and why the preservation of such an element is necessary to support the unrelated program or programs.

II. Background

A. The EPA's Historical Approach to CAA Section 202(a)

Congress originally enacted the language that became CAA section 202(a) as part of the Motor Vehicle Pollution Control Act of 1965, which required the Secretary of Health, Education, and Welfare to ''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 contribute to, air pollution which endangers the health or welfare of any persons.'' [17] Congress retained this language, while adding additional requirements for the content of emission standards, in the Air Quality Act of 1967,[18] and, later, incorporated it into the Clean Air Act of 1970, which transferred the Secretary's regulatory authority to the newly created EPA.[19] Separately, the 1970 CAA addressed emissions from existing vehicles and engines, stationary sources, and aircraft engines.[20] As subsequently amended, CAA section 202(a) has remained a critical part of the comprehensive national framework for regulating air pollution from mobile sources, and new motor vehicles and new motor vehicle engines in particular, under Title II of the CAA.[21]

In its first four decades administering the statute, the EPA applied CAA section 202(a) to local and regional air pollution problems through rulemakings that prescribed standards and set forth the Administrator's findings that the relevant air pollutant emissions cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.[22] As explained in the following subsections, the EPA maintained this approach through 2008 and never sought to invoke CAA section 202(a) to regulate in response to global climate change concerns.

B. Petitions for Rulemaking and Massachusetts v. EPA

In October 1999, a coalition of 19 environmental organizations petitioned the EPA to regulate the emission of four GHGs—CO_2, methane, N_2O, and HFCs—from new motor vehicles and engines under CAA section 202(a)(1). Petitioners claimed that these four GHGs were ''air pollutant[s]'' under CAA section 302(g), significantly contributed to global climate change, and met the statutory standard for regulation under CAA section 202(a)(1). Thus, petitioners claimed that the EPA had the authority and obligation to find that GHG emissions from new motor vehicles and engines cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare and to prescribe standards in response.

In September 2003, after receiving and responding to nearly 50,000 public comments on the relevant issues, the EPA denied the 1999 petitions in a final action titled ''Control of Emissions from New Highway Vehicles and Engines,'' 68 FR 52922 (Sept. 8, 2003) (2003 Denial). The 2003 Denial asserted three primary reasons for denying the petitions. First, after ''examin[ing] the fundamental issue of whether the CAA authorizes the imposition of control requirements'' to ''reduce the risk of global climate change,'' we concluded that ''CO_2 and other GHGs cannot be considered 'air pollutants' subject to the CAA's regulatory provisions for any contribution they may make to global climate change.'' 68 FR 52925. Citing the Supreme Court's decision in *FDA* v. *Brown & Williamson Tobacco Corp.,* 529 U.S. 120 (2000), we noted that the CAA does not address GHGs as a regulatory matter, including in recent amendments, and that ''EPA has used these provisions to address air pollution problems that occur primarily at ground level or near the surface of the earth.'' 68 FR 52926. On this basis, we concluded that GHGs ''are not air pollutants under the CAA's regulatory provisions, including sections 108, 109, 111, 112, and 202'' because they categorically are not ''air pollutant[s]'' under the Act-wide definition in CAA section 302(g). 68 FR 52928. Second, we concluded that regulating GHG emissions from motor vehicles and engines under the CAA would interfere with NHTSA's separate authority to implement fuel economy standards. 68 FR 52929. Finally, we asserted that regulating GHG emissions from motor vehicle engines under the CAA would

[16] ''Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards,'' 75 FR 25324 (May 7, 2010); ''Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles,'' 76 FR 57106 (Sept. 15, 2011); ''2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards,'' 77 FR 62624 (Oct. 15, 2012); ''Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles-Phase 2,'' 81 FR 73478 (Oct. 25, 2016); ''The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks,'' 85 FR 24174 (Apr. 30, 2020); ''Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards,'' 86 FR 74434 (Dec. 30, 2021); ''Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles,'' 89 FR 27842 (Apr. 18, 2024); ''Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles-Phase 3,'' 89 FR 29440 (Apr. 22, 2024).

[17] Public Law 89–272, 202(a), 79 Stat. 992, 992–93 (1965).

[18] Public Law 90–148, 202(a), 81 Stat. 485, 499 (1967).

[19] Public Law 91–604, 84 Stat. 1690 (1970).

[20] *Id.*

[21] In the Clean Air Act Amendments of 1977, Congress replaced the phrase ''which endangers the public health or welfare'' with ''which may reasonably be anticipated to endanger public health or welfare.'' Public Law 95–95, 401(d)(1), 91 Stat. 685, 791 (1977).

[22] *See* 74 FR 66501, 66527, 66538, 66543 (acknowledging this regulatory history).

undermine the President's overall policy approach of addressing global climate change through voluntary actions and incentives, the promotion of further research and technologies, and international negotiations. 68 FR 52930–31.

In *Massachusetts,* the Supreme Court narrowly reversed the D.C. Circuit's decision to uphold the EPA's denial of the 1999 petitions for rulemaking.[23] The Court took particular issue with the EPA's reading of the Act-wide definition in CAA section 302(g), ruling that ''[t]he Clean Air Act's sweeping definition of 'air pollutant' . . . embraces all airborne compounds of whatever stripe'' and provided no textual basis for excluding CO_2 or the three other GHGs raised in the petitions for rulemaking. 549 U.S. at 528–29. The Court also addressed EPA's reliance on *Brown & Williamson,* which the majority construed as having found no congressional intent to ban the sale of tobacco products outright because such an application of the relevant statute would have been highly unlikely and because the Food and Drug Administration (FDA) had expressly refused to assert such authority in the past. *Id.* at 530–31. In contrast, in *Massachusetts,* the Court found that the CAA did not reflect a congressional intent to categorically exclude GHGs and, citing several Agency memoranda, that we had not similarly foresworn all authority to regulate GHGs as a categorical matter. *Id.* Notably, the Court expressly declined to decide whether the EPA was required to issue an affirmative endangerment finding as to GHG emissions under the standard set out in CAA section 202(a). *Id.* at 534 (''We need not and do not reach the question whether on remand EPA must make an endangerment finding.''). Nor did the Court address ''whether policy concerns can inform EPA's actions in the event that it makes such a finding.'' *Id.* at 534–35. Rather, the Court held that we must respond to the petitions by deciding whether GHG emissions from new motor vehicles and engines meet the standard for regulation in CAA section 202(a) or whether the science was too uncertain to make any determination, and that, in doing so, we must ''ground [our] reasons for action or inaction in the statute.'' *Id.* at 535.[24]

C. The 2009 Endangerment Finding

The EPA responded to the Supreme Court's decision in *Massachusetts* by issuing an advanced notice of proposed rulemaking titled ''Regulating Greenhouse Gas Emissions Under the Clean Air Act,'' 73 FR 44354 (July 30, 2008) (2008 ANPRM). The Administrator began by noting it was ''clear that if EPA were to regulate [GHG] emissions from motor vehicles under the Clean Air Act,'' the interplay between CAA section 202(a) and similarly worded statutory provisions ''could result in an unprecedented expansion of EPA authority that would have a profound effect on virtually every sector of the economy and touch every household in the land.'' 73 FR 44355. The Administrator cautioned that because the CAA was ''originally enacted to control regional pollutants that cause direct health effects,'' invoking authority to regulate GHG emissions ''would inevitably result in a very complicated, time-consuming, and, likely, convoluted set of regulations'' that ''would be relatively ineffective at reducing [GHG] concentrations'' and have a ''potentially damaging effect on jobs and the U.S. economy.'' *Id.*

The 2008 ANPRM echoed the Administrator's concerns by seeking public comment on invoking CAA section 202(a) to regulate new motor vehicle and engine emissions in response to global climate change concerns. We acknowledged that the CAA ''was not specifically designed to address GHGs,'' 73 FR 44397, and that the EPA had historically interpreted and applied its CAA regulatory authorities to address local and regional air pollution, 73 FR 44408. We further noted that Congress was considering legislation to address the Nation's response to global climate change concerns and that, since *Massachusetts,* Congress had passed and the President had signed into law the Energy Independence and Security Act (EISA), which amended provisions applicable to the EPA's Renewable Fuels Standard (RFS) program and NHTSA's CAFE standards program. 73 FR 44398. Finally, we noted that the EPA had received additional petitions to regulate stationary sources and additional GHGs, including water vapor, all of which suggested that GHG emission regulations could not readily be limited to new motor vehicles and engines. 73 FR 44399 & n.26.

As to CAA section 202(a), the 2008 ANPRM set out a framework for determining whether ''GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public welfare'' under CAA section 202(a)(1) or for ''explain[ing] why scientific uncertainty is so profound that it prevents making a reasoned judgment on such a determination.'' 73 FR 44398, 44421. We reviewed available information for CO_2, methane, and N_2O emissions and noted that HFCs, PFCs, and SF_6 are ''often grouped together'' and separately from the rest ''because they contain fluorine, typically have large global warming potentials, and are produced only through human activities.'' 73 FR 44401–02.[25] With respect to endangerment, we sought comment on whether GHGs could properly be considered dangerous air pollution because the potential health effects are indirect and the potential welfare effects may be positive on balance. 73 FR 44427. In addition, we sought comment on whether ''the unique characteristics and properties of each GHG . . . as well as current and projected emissions'' meant that each GHG should be analyzed individually or whether certain GHGs other than CO_2 were amenable to grouping. 73 FR 44428. With respect to causation or contribution, we presented motor vehicle and engine emissions data for each GHG separately and noted that emission trends had diverged between pollutants, with CO_2 emissions, for example, generally increasing since 1990 and N_2O emissions, for example, increasing from 1990 to 1995 and then falling substantially from 1995 to 2006 because of fuel and technology changes. 73 FR 44430. We also presented extensive information on potential regulatory approaches that could be triggered by a positive finding under CAA section 202(a), including

[23] The D.C. Circuit majority had upheld the denial on the merits because ''the EPA Administrator properly exercised his discretion under § 202(a)(1) in denying the petition for rulemaking.'' *Massachusetts* v. *EPA,* 415 F.3d 50, 58 (D.C. Cir. 2005). The dissent argued that CAA section 202(a)'s breadth provided the EPA sufficient authority to regulate GHGs, that more specific authorization was not required, and that the EPA's policy justifications were inadequate reasons to deny the petitions. *Id.* at 67–82 (Tatel, J., dissenting).

[24] Writing for four members of the Court, Chief Justice Roberts would have dismissed the petitions for review for lack of Article III standing. 549 U.S. at 535 (Roberts, C.J., joined by Scalia, Thomas, and Alito, J.J., dissenting). Writing for the same four members of the Court, Justice Scalia would have denied the petitions on the grounds that the Administrator reasonably exercised judgment in declining to regulate and that CAA section 302(g)'s definition of ''air pollutant'' does not clearly encompass CO_2 and other GHGs that naturally occur in the ambient air. 549 U.S. at 549 (Scalia, J., joined by Roberts, C.J., and Thomas and Alito, J.J., dissenting).

[25] In the 2008 ANPRM, the EPA noted that the most recently available IPCC analysis concluded that ''[t]he anthropogenic combined heating effect (referred to as forcing) of [methane], N_2O, HFCs, PFCs and SF_6 is about 40% as large as the CO_2 cumulative heating effect since pre-industrial times.'' 73 FR 44423.

approaches specific to particular GHGs. 73 FR 44438–63.

Following a change in administration, however, the EPA proposed in April 2009 and finalized in December 2009 a much different approach to analyzing GHG emissions from new motor vehicles and engines under CAA section 202(a). In the Endangerment Finding, the Administrator found that ''the science [was] sufficiently certain'' to compel an affirmative determination and interpreted *Massachusetts* as ''allow[ing] for the consideration only of science.'' 74 FR 66501. Relatedly, the Administrator did not consider any of the implementation challenges or options discussed in the 2008 ANPRM, asserting instead that CAA section 202(a) confers ''procedural discretion'' to issue standalone findings without considering a regulatory response because the statute ''is silent on this issue.'' *Id.* The Administrator also defined all six ''well-mixed'' GHGs collectively as the relevant ''air pollutants'' and ''air pollution'' for purposes of endangerment and causation or contribution, meaning the Endangerment Finding did not need to address the different characteristics or emission trends of any particular GHG. 74 FR 66516–21, 66536–57.

With respect to endangerment, the Administrator began by excluding adaptation—human responses that reduce potential adverse impacts—and mitigation—independent measures that reduce the causes of potential adverse impacts—from the analysis of global climate change concerns. 74 FR 66513. The Administrator acknowledged that ''some level of autonomous adaptation will occur'' and that ''this separation means this approach may not reflect the actual conditions in the real world in the future, because adaptation and/or mitigation may occur and change the risks.'' *Id.* Nevertheless, the Administrator reasoned that ''it would be extremely hard to make a reasoned projection of human and societal adaptation and mitigation responses'' because they are ''largely political'' or ''individual personal judgments.'' *Id.* Next, the Administrator relied on IPCC Assessment Report 4 (AR4) projections to find that global temperatures would likely increase between 1.8 to 4 degrees Celsius by 2100, with an uncertainty range of 1.1 to 6.4 degrees Celsius. 74 FR 66519. Operating within this analytical framework, the Administrator found that elevated global concentrations of GHGs from all foreign and domestic sources were responsible for increased global temperatures that were responsible in turn for indirect health risks driven by (1) more frequent heat waves; (2) air quality effects, including increased formation of ozone, and (3) broader societal impacts related to increased frequency and severity of certain extreme weather events. 74 FR 66525.[26] The Administrator also found that GHG emissions could lead to welfare effects related to (1) food production and agriculture; (2) forestry; (3) water resources; (4) sea level rise; and (5) energy infrastructure and settlements, although the evidence was uncertain for several categories that may see near-term benefits. 74 FR 66531–35.[27] Importantly, the Administrator acknowledged that the understanding of public health and welfare in the Endangerment Finding was atypical, particularly with respect to considering indirect effects, but asserted the approach was necessary given the ''unique'' challenge presented by global climate change. 74 FR 66527.

With respect to contribution, the Administrator asserted broad authority to interpret the statutory standard because ''[t]he language of CAA section 202(a) is silent regarding how the Administrator is to make her contribution analysis.'' 74 FR 66544. Exercising that putative interpretive authority, the Administrator concluded that ''it is reasonable to consider that lower percentages contribute than one may consider when looking at a local or regional problem involving fewer sources of emissions,'' 74 FR 66545, because ''all contributors must do their part'' to avoid ''a tragedy of the commons, whereby no country or source category would be accountable for contributing to the global problem of climate change,'' 74 FR 66543. Next, the Administrator relied on data showing that existing motor vehicles and engines emitted four GHGs—CO_2, methane, and N_2O from engines, as well as HFCs from air conditioning units—that accounted for 4.3 percent of global GHG emissions at the time. On that basis, the Administrator found that GHG emissions from new motor vehicles and engines ''contribute to the air pollution'' consisting of the six ''well-mixed'' GHGs previously identified as a danger to public health or welfare. 74 FR 66537–39.

Crucially, the Endangerment Finding made clear that the EPA was acting independently from any new congressional mandate. Rather, the Administrator interpreted CAA section 202(a) as setting out a standalone authority to issue findings that establish jurisdiction without considering implementation concerns and purported to rest the Endangerment Finding solely on a scientific judgment informed by the record as assembled by the Agency in 2009.

D. Implementation of the 2009 Endangerment Finding

In the years since issuing the Endangerment Finding, the EPA has promulgated GHG emission standards for various classes of new motor vehicles and engines in reliance on the Endangerment Finding and, as anticipated in the 2008 ANPRM, sought to expand the same analytical framework to regulatory provisions governing existing vehicles, stationary sources, aircraft, and oil and gas operations. For a full accounting of GHG emission standards adopted since 2009 under CAA section 202(a), see sections VI.B and VI.C of this preamble.

Following the Endangerment Finding, the EPA received multiple petitions for reconsideration from industry groups, States, and various organizations arguing that our approach in 2009 was legally and scientifically flawed and that external assessments by the IPCC, among others, had not adequately addressed recent criticisms of climate change science. The EPA denied these consolidated petitions in 2010 without notice and comment. Reiterating the scientific assertions from the technical support document (TSD) used in 2009, we emphasized that we had conducted an independent review of outside assessments in issuing the Endangerment Finding and asserted that the core conclusions of the Endangerment Finding remained valid notwithstanding the flaws raised by the petitioners. The EPA also issued a volume of response documents defending the methodologies and experts relied upon and concluded that no new information warranted reconsideration. 75 FR 49556.

In April 2022, the EPA denied, again without notice and comment, a new round of petitions for reconsideration and rulemaking asserting that the Endangerment Finding was legally and scientifically flawed and undermined by more recent scientific assessments. We acknowledged that several recent studies contradicted assessments by the USGCRP and IPCC but reaffirmed our earlier position that such assessment reports are entitled to greater weight

[26] The Administrator also noted that increased global temperatures could lead to changes in certain food- and water-borne pathogens and allergens (including increases in pollen resulting from increased plant growth at higher concentrations of CO_2) but did ''not plac[e] primary weight on these factors.'' 74 FR 66498, 66526.

[27] The Administrator relied on welfare impacts to water resources and sea level rise as providing ''the clearest and strongest support for an endangerment finding.'' 74 FR 66534.

than dissenting views.[28] We also considered criticisms of the EPA's Social Cost of Carbon (SCC) methodology out of scope because ''the social cost of carbon played no role in the 2009 Endangerment Finding.'' [29] We further acknowledged that severing the endangerment and cause or contribute analysis from the development of subsequent regulations had impacted the EPA's approach to GHG emission standards, including because the Science Advisory Board (SAB) did not have the opportunity to review the Endangerment Finding as would otherwise have been required by the CAA.[30] Nevertheless, we reaffirmed our position that CAA section 202(a) grants ''procedural discretion'' to issue findings and emission standards separately and ''decline[d] to exercise that discretion'' differently.[31]

E. Reconsideration of the 2009 Endangerment Finding

Since the EPA published the 2009 Endangerment Finding, there have been developments in innovation, science, economics, and mitigation, as well as significant Supreme Court decisions that provide new guidance on how federal agencies should interpret the statutory provisions that Congress has tasked them with administering.[32] Accordingly, the Administrator has now determined that the Endangerment Finding should be reconsidered to address legal and scientific developments that present reason to question the ongoing validity and reliability of its conclusions and to subject these important issues to public comment for the first time since 2009.

In initiating reconsideration, the Administrator explored all findings, support, questions, and ambiguities contained within the science relied upon by the Endangerment Finding. As acknowledged in the Endangerment Finding and recent reports, there are significant questions and ambiguities presented by both the observable realities of the past nearly two decades and the recent findings of the scientific community, including those summarized in the 2025 CWG Draft Report. There may also be as-yet-unidentified issues or discrepancies present in the underlying TSD and scientific justifications offered in the Endangerment Finding. When confronted with science offering a diverse array of conclusions, methodologies, and explanations, the Administrator strove to inform his judgment to the most impartial extent possible. A more detailed discussion of the available climate science can be found in section IV.B.

III. Legal Framework for Proposed Action

A. Proposed Rescission of Endangerment Finding

The statutory authority for this proposed action is the same as that relied upon in the prior actions at issue: CAA section 202(a)(1), which requires the Administrator to ''prescribe'' and ''from time to time revise . . . standards'' for certain air pollutants emitted by new motor vehicles and new motor vehicle engines ''in accordance with the provisions of this section.'' [33] Unless provided otherwise by statute, an agency may revise or rescind prior actions so long as it acknowledges the change in position, provides a reasonable explanation for the new position, and considers legitimate reliance interests in the prior position.[34]

The EPA proposes that nothing in the language of the statute prohibits or conditions our general authority to rescind prior actions. CAA section 202(a)(1) grants the Administrator discretion to ''revise'' standards prescribed ''in accordance with the provisions of this section'' and does not require retaining the same level of stringency when revising or rescinding existing standards. Moreover, the statute neither authorizes the Administrator to issue standalone findings that trigger a duty to regulate nor prohibits the Administrator from rescinding such findings. Rather, CAA section 202(a)(1) requires the Administrator to prescribe standards for emissions of any air pollutant by classes of new motor vehicles or engines when, in his judgment, emissions of such air pollutant by such classes of new motor vehicles or engines ''cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.'' Notably, the EPA has consistently assumed that it has the statutory authority to rescind the Endangerment Finding in reviewing the merits of petitions for reconsideration since 2009 and did not state that we lack such reconsideration authority.[35]

The EPA acknowledges that rescinding the Endangerment Finding as proposed would involve significant changes to the legal interpretations adopted in the Endangerment Finding and retained in subsequent actions. For example, if finalized, the interpretation of CAA section 202(a) proposed in this action would preclude the EPA from issuing standalone endangerment and contribution findings and would instead require the Agency to make findings for particular air pollutant emissions and classes of new motor vehicles and engines as an integral step in a rulemaking to prescribe standards for such emissions and classes, consistent with our decades-long practice prior to 2009 in regulating non-GHG air pollutants. Furthermore, if finalized, the interpretation of CAA section 202(a) proposed in this action would reverse the basis for the Endangerment Finding by concluding that global climate change concerns cannot satisfy the statutory standard for regulation under CAA section 202(a). For discussion of our proposed interpretation of CAA section 202(a) and related statutory provisions, see section IV.A of this preamble. For discussion of our alternative proposal to rescind the Endangerment Finding because the EPA exercised its authority under CAA section 202(a) unreasonably and because the Administrator no longer has confidence in the assumptions, methodology, and conclusions in the Endangerment Finding in light of the scientific record, see section IV.B of this preamble.

The EPA is also proposing additional statutory and policy rationales for repealing the GHG emission standards currently in effect for new motor vehicles and engines separate and apart from the proposed rescission of the Endangerment Finding. If finalized, these alternative rationales would change the novel position taken in rulemakings since 2009 to prescribe and revise GHG emission standards under CAA section 202(a).[36] For example, if finalized, our proposal to determine that there is no ''requisite technology'' for

[28] 2022 Denial at 15–17.

[29] *Id.* at 30.

[30] *Id.* at 36 (noting that 42 U.S.C. 4365(c)(1) requires SAB consultation for a ''standard'' promulgated under CAA section 202(a) but asserting that requirement does not extend to ''findings'' issued under the same provision).

[31] *Id.* at 39.

[32] *See* Feb. 19, 2025 Memo at 1.

[33] 42 U.S.C. 7521(a)(1).

[34] *See Wages & White Lion,* 145 S. Ct. 898; *FCC* v. *Fox Television Stations, Inc.,* 556 U.S. 502 (2009); *Motor Vehicle Mfrs. Ass'n* v. *State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29 (1983); *Clean Air Council* v. *Pruitt,* 862 F.3d 1, 8 (D.C. Cir. 2017) (''Agencies obviously have broad discretion to reconsider a regulation at any time.'').

[35] *See, e.g.,* 2022 Denial at 7–10 (denying mandatory reconsideration under CAA section 307(d) and reviewing the petitions on the merits as rulemaking petitions under APA section 553(e)); 75 FR 49560–63 (denying mandatory reconsideration under CAA section 307(d) without asserting that the EPA lacked statutory authority to rescind or revise the Endangerment Finding).

[36] 75 FR 25324 (May 7, 2010); 76 FR 57106 (Sept. 15, 2011); 77 FR 62624 (Oct. 15, 2012); 81 FR 73478 (Oct. 25, 2016); 85 FR 24174 (Apr. 30, 2020); 86 FR 74434 (Dec. 30, 2021); 89 FR 27842 (Apr. 18, 2024); 89 FR 29440 (Apr. 22, 2024).

vehicle emission control capable of having a measurable impact on the dangers identified in the Endangerment Finding would preclude any GHG emission standards from going into effect. Furthermore, if finalized, our proposal to determine that the GHG emission standards harm public health and welfare on balance would make it unreasonable and contrary to the objectives of the statute to issue and retain such standards. See section V of this preamble for further discussion of these additional rationales and the Agency's prior positions.

The EPA acknowledges that repealing the GHG emission standards based on the proposed rescission of the Endangerment Finding would depart from our position in rulemakings since 2009 that prescribed and revised GHG emission standards for light- and medium-duty vehicles and heavy-duty vehicles and engines under CAA section 202(a). If finalized as proposed, the rescission would eliminate the statutory basis for those standards because we relied on the Endangerment Finding in each rulemaking to invoke our authority under CAA section 202(a) without making the required findings for GHGs emitted by the class or classes of new motor vehicles or engines at issue in each rulemaking. See section VI of this preamble for further discussion of each prior rulemaking and the regulatory changes that would be necessary to repeal all GHG emission standards currently in effect for new motor vehicles and engines on any of the bases proposed in this action.

As discussed throughout this preamble, the EPA is proposing these changes to comply with limits on our statutory authority under the best reading of CAA section 202(a), respond to legal and scientific developments that undermine the conclusions and assumptions of the Endangerment Finding, and realign Agency resources to prioritize core statutory responsibilities. Importantly, the Nation's policy response to global climate change concerns was a major issue in the 2024 presidential election, in which voters were presented with distinct legal and policy approaches and elected a candidate promising a change in policy. Under these circumstances, the election of a new Administration is an independent and sufficient basis for changing legal interpretation and policy within the boundaries set by statute.[37] Democratic accountability is essential to the exercise of delegated authority by administrative agencies,[38] and retaining the Endangerment Finding without clear statutory authority would frustrate, not promote, constitutional values and the rule of law. If the EPA lacks authority to retain the Endangerment Finding under the best reading of CAA section 202(a), the statute controls regardless of policy preferences.

The EPA seeks comment on the nature and extent of any reliance interests that may have arisen from our assertion of regulatory authority over GHG emissions from new motor vehicles and engines and is committed to assessing any such interests, determining whether they are significant, and weighing such interests against competing rationales, as required by law.[39]

Specifically, we seek comment on whether regulated parties have any significant reliance interests in our GHG emission standards for new motor vehicles and new motor vehicle engines. We are aware that manufacturers, importers, and sellers have already expended resources complying with GHG emission standards for MYs 2012 through 2026, and that consumer prices for vehicles in these MYs reflect the costs of such compliance. Because many compliance costs are incurred as part of research and development and during manufacturing, with the notable exception of the need to purchase compliance credits, this proposed action would have limited impacts on MYs 2012 to 2024, greater impacts for MYs 2024–2026, and would entirely relieve future regulatory obligations for MY 2027 and beyond. As discussed in sections VI.B and VI.C of this preamble, we are confident that the Agency has adequate regulatory tools to address transitional compliance concerns and note that this proposed action would not, if finalized, mandate any particular response by regulated parties. We are also aware that regulated parties may have reliance interests in national uniformity and CAA preemption with respect to emission standards for new motor vehicles and engines. As discussed in section VI.A of this preamble, CAA section 209(a) and other applicable sources of federal preemption would continue to apply, and we would retain our authority to regulate emissions, including emissions of the six ''well-mixed'' GHGs addressed in the Endangerment Finding, under circumstances that meet the standard for regulation under CAA section 202(a). We seek comment on each of these rationales, including on whether any reliance interests in national uniformity and preemption would support finalizing or not finalizing the proposed action, or adopting certain rationales and not finalizing other rationales. We further seek comment on the continued preemptive effect of the CAA in the event that the EPA finalizes the proposed rescission or any of the alternatives discussed herein (or in the event that the Agency determines that it lacks authority at the present time to regulate GHG emissions under one or more provisions of the CAA for any reason). As a general matter, we also seek comment on how we should repeal the Endangerment Finding and regulations if the decision is made to proceed with the proposed repeals, including under any of the options set out in this proposal or any additional grounds and means.

In addition, the EPA seeks comment on whether regulated parties and other stakeholders have significant reliance interests in GHG emission standards for new motor vehicles and engines. This proposed action would make only minor conforming adjustments to regulatory provisions for criteria pollutants and air toxics, thereby leaving most emission standards for new motor vehicles and engines in place. Nor would this proposed action impact separate economy and fuel-efficiency standards that have the effect of reducing GHG emissions per mile traveled from new motor vehicles and engines, including standards issued by NHTSA. As explained in section IV.A.1 of this preamble, we now believe that regulating GHG emissions based on global climate change concerns exceeds our statutory authority under CAA section 202(a) and, as such, propose that reliance interests alone would not justify retaining the GHG emission standards that we lacked authority to prescribe. As discussed in section IV.A.2 of this preamble, potential dangers from local or regional exposure to the six ''well-mixed'' GHGs covered by the Endangerment Finding are regulated separately under specific grants of statutory authority. And as discussed in section V of this preamble, we now believe that GHG emission standards for new motor vehicles and engines may harm public health and

[37] *See State Farm,* 463 U.S. at 59 (Rehnquist, J., concurring in part and dissenting in part); *PETA* v. *USDA,* 918 F.3d 151, 158 (D.C. Cir. 2019) (''new administrations are entitled to reevaluate and modify agency practices, even longstanding ones''); *Nat'l Ass'n of Home Builders* v. *EPA,* 682 F.3d 1032, 1043 (D.C. Cir. 2012) (''the inauguration of a new President and the confirmation of a new EPA Administrator'' went ''a long way toward explaining why EPA'' changed policy).

[38] *See, e.g., U.S. Telecom Ass'n* v. *FCC*, 855 F.3d 381 (D.C. Cir. 2017) (Brown, J., dissenting from denial of rehearing en banc); Elena Kagan, Presidential Administration, 114 Harv. L. Rev. 2245, 2252–53, 2332–34 (2001).

[39] *See, e.g., DHS* v. *Regents of Univ. of Cal.*, 591 U.S. 1, 33 (2020).

welfare without having any measurable impact on the global climate change concerns identified in the Endangerment Finding. We seek comment on potential reliance interests in GHG emission standards for global climate change concerns under CAA section 202(a), including on whether such reliance justifies retaining standards in the absence of statutory authority and the extent to which potential dangers are addressed, or could be addressed, under more specific authorities.

The EPA recognizes that we have relied in part on the Endangerment Finding in issuing subsequent endangerment findings and GHG regulations under other CAA provisions, including for certain stationary sources and aircraft engines. The Supreme Court has since vacated several of these actions, including GHG regulations for existing sources in the fossil-fuel fired power plant source category under CAA section 111(d) and for permitted sources under CAA Title V.[40] For those actions that remain in effect, we have initiated or intend to initiate separate rulemakings that will address any overlapping issues.

Among other concerns with the Endangerment Finding, we believe that severing consideration of endangerment and causation or contribution from the appropriate regulatory response under CAA section 202(a) resulted in broad statements that did not account for the statutory language in CAA section 202(a)(1) on which the Endangerment Finding purported to rely. Congress used different authorizing language to address distinct issues for stationary sources regulated under CAA section 111 and aircraft engines regulated under CAA section 231. In reconsidering actions taken under these authorities, we intend to address prior findings and standards in light of the particular statutory language, policy concerns, and scientific information relevant to each context. In this proposed action, we seek comment on reliance interests in the Endangerment Finding and GHG emission standards issued under CAA section 202(a) and reserve the right to direct out of scope comments to the appropriate rulemaking docket for the applicable regulatory action.

B. Proposed Amendments to New Motor Vehicle and Engine Regulations

As noted above, CAA section 202(a)(1) directs the Administrator to prescribe ''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.'' This core directive has remained substantially the same since Congress enacted the Motor Vehicle Pollution Control Act of 1965.[41] Thus, a necessary condition to regulating emissions from new motor vehicles and engines is a finding—an ''endangerment finding''—that emissions of an air pollutant from a class or classes of new motor vehicles or engines cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.

For the reasons discussed in section IV of this preamble, we are proposing to rescind the Endangerment Finding for GHG emissions from new motor vehicles and new motor vehicle engines and, on that basis, to repeal all existing GHG emission standards for passenger cars, light-duty trucks, motorcycles, buses, medium-duty vehicles, and heavy-duty vehicles and engines. The Endangerment Finding has served as the EPA's basis for regulating GHG emissions from new motor vehicles and new motor vehicle engines since 2009. Absent findings of endangerment and causation or contribution, the EPA lacks statutory authority to prescribe standards for those emissions under CAA section 202(a)(1). We propose that when the EPA rescinds an endangerment finding for an air pollutant, it must cease prescribing and enforcing standards applicable to the emission of that pollutant from new motor vehicles or new motor vehicle engines and should rescind existing standards no longer authorized by statute.

For the reasons discussed in section V of this preamble, we are also proposing additional bases to repeal GHG emission standards even if the Endangerment Finding were to remain in place. We propose that regardless of whether GHG emissions trigger the standard for regulation in CAA section 202(a)(1), our authority to prescribe and enforce emission standards for GHGs is limited by the language of CAA section 202(a)(2) and must be exercised in a reasonable manner that furthers, rather than burdens, the health and welfare of all Americans.

Accordingly, the EPA is proposing to repeal all standards and associated test procedures adopted to limit the emission of GHGs under CAA section 202(a) for highway light-, medium-, and heavy-duty vehicles and engines. The EPA notes that, for light-duty vehicles, the Energy Policy and Conservation Act of 1975 (EPCA) and the 2007 EISA authorize NHTSA to administer the CAFE program and fuel economy labeling program. These statutes also direct the EPA to determine compliance values for manufacturers subject to the CAFE program and the fuel economy labeling program. Importantly, these statutory obligations are distinct from the EPA's authority under CAA section 202(a) and from the EPA's decisions since 2009 to regulate GHG emissions under CAA section 202(a). As explained in section VI of this preamble, we are retaining and not proposing to reopen regulatory provisions related to our statutory roles in these NHTSA programs. Likewise, we are retaining and not proposing to reopen any criteria pollutant and air toxics standards for highway light-, medium-, and heavy-duty vehicles and engines under CAA section 202(a).

IV. Proposed Rescission of the Endangerment Finding

In this section, the EPA proposes to rescind the Endangerment Finding by concluding, based on multiple, independent alternative legal rationales, that the Agency's unprecedented foray into regulating GHG emissions from new motor vehicles and engines is inconsistent with the best reading of CAA section 202(a). Under any proposed alternative, the EPA would lack authority to retain existing GHG emission standards for new motor vehicles and engines and proceed to repeal the relevant provisions of Title 40 of the CFR as proposed in section VI of this preamble.

Section IV.A of this preamble describes our primary proposal to rescind the Endangerment Finding by concluding that CAA section 202(a) does not authorize the EPA to prescribe standards for GHG emissions based on global climate change concerns or to issue standalone findings that do not apply the statutory standard for regulation as a cohesive whole. If finalized, this proposal would require rescinding the Endangerment Finding and resulting regulations because we lacked statutory authority to issue them in the first instance. We begin by proposing the best reading of CAA section 202(a) and related provisions, as informed by the Supreme Court's decisions in *Loper Bright* and *UARG*. Next, we propose that the Nation's response to global climate change concerns generally, and specifically whether that response should include regulating GHG emissions from new motor vehicles and engines, is an

[40] *See West Virginia,* 597 U.S. 697; *UARG,* 573 U.S. 302.

[41] Public Law 89–272, 79 Stat. 992–93.

economically and politically significant issue that triggers the major questions doctrine under *UARG* and *West Virginia,* and that Congress did not clearly authorize the EPA to decide it by empowering the Administrator to ''prescribe . . . standards'' under CAA section 202(a). Throughout this section, we propose that the Endangerment Finding relied on various forms of *Chevron* deference [42] to depart from the best reading of the statute and exceeded the EPA's authority in several fundamental respects, any one of which would independently require rescission to conform to the best reading of the law.

Section IV.B of this preamble describes the EPA's alternative proposal that regardless of whether CAA section 202(a) authorizes regulating GHG emissions based on global climate change concerns, we would rescind the Endangerment Finding by concluding that the Administrator analyzed endangerment and contribution in an unreasonable manner. We begin by recounting the interpretation of CAA section 202(a) adopted in the Endangerment Finding, which asserted ''procedural discretion'' to issue standalone findings without prescribing the standards required by such findings and to sever the analysis of endangerment from the analysis of contribution. Next, we propose that the Administrator exercised that discretion unreasonably by adopting an approach that papered over substantial uncertainties in the scientific record and failed to draw the required connection between GHG emissions from a class or classes of new motor vehicles and global climate change concerns. We further propose that developments since 2009 demonstrate the uncertainties acknowledged in the Endangerment Finding are more significant than previously believed, including because many of its predictive judgments involve ranges of assumptions that largely fail to satisfy the statutory standard for regulation and because the more pessimistic assumptions have not been borne out in empirical data and peer-reviewed studies through 2025. Finally, we propose that the Administrator would exercise any discretion conferred by CAA section 202(a) differently to ensure a legally and scientifically sound approach and that, under that approach, the Endangerment Finding and resulting GHG emission standards must be rescinded.

We seek comment on every aspect of the primary and alternative proposal, including the key issues on which we specifically request comment as set out in section VII of this preamble.

A. Primary Rationale for Proposed Rescission

The Endangerment Finding announced an interpretation of CAA section 202(a) that permitted the EPA to prescribe standards in response to global climate change concerns rather than local or regional exposures, granted ''procedural discretion'' to issue standalone findings without considering regulatory response, and severed the finding of endangerment from the finding of contribution to that endangerment. At the time, we assumed that statutory silence granted discretion to construe the scope of our authority and asserted or implied that the Supreme Court's decision in *Massachusetts* required us to read the statute as authorizing the regulation of GHG emissions in response to global climate change concerns.

In important respects, the Endangerment Finding and the Supreme Court's decision in *Massachusetts* straddled a transitional period regarding the standards for statutory interpretation and understandings of agency authority. The breadth of agency discretion, and the question whether Congress reserves major policy questions for itself, were sharply disputed. Judicial decisions in the intervening fifteen years have significantly clarified the law in both respects. In *Loper Bright,* the Supreme Court expressly overturned the doctrine of deference to agency statutory interpretation, ruling that statutes ''have a single, best meaning'' that is informed, but not dictated, by Executive Branch practice. 603 U.S. at 400–01. And in *West Virginia,* the Supreme Court built upon its decisions in *UARG* and *Brown & Williamson,* among others, by confirming that an agency must have more than ''a colorable textual basis'' to claim authority to decide major questions of policy that Congress would generally reserve for itself in the first instance. 597 U.S. at 723.

In this subsection, we propose that the best reading of CAA section 202(a), as informed by *Loper Bright* and principles of statutory interpretation, does not authorize the EPA to assert jurisdiction over GHG emissions based on global climate change concerns in a standalone endangerment finding. Regardless whether GHGs are properly considered ''agents of air pollution'' under the general, Act-wide definition of ''air pollutant'' at CAA section 302(g), the EPA cannot regulate under CAA section 202(a) unless the emissions of the air pollutant by a class or classes of new motor vehicles ''cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.'' Because the text, structure, and history of CAA section 202(a) and related provisions demonstrate that this language targets air pollution that threatens public health or welfare through local or regional exposure, ''air pollution'' defined as six ''well-mixed'' GHGs raising global climate change concerns that adversely impact a subset of regions globally cannot satisfy this standard. We further propose that this reading is independently confirmed and strengthened by the major questions doctrine. Specifically, we propose that the major questions doctrine applies and precludes the EPA from asserting authority to regulate in response to global climate change concerns under CAA section 202(a). At a minimum, Congress did not *clearly* authorize the EPA to decide the Nation's response to global climate change concerns by empowering the Agency to ''prescribe . . . standards'' for certain air pollutants emitted by new motor vehicles and engines. On these bases, and on account of the additional procedural and analytical errors set out below, we propose that the Endangerment Finding exceeded the EPA's authority and must be rescinded.

1. Best Reading of CAA Section 202(a)

Congress originally enacted the language of CAA section 202(a) in the Motor Vehicle Pollution Control Act of 1965 and retained it, with minor revisions, in the 1970 CAA and all subsequent statutory amendments. The key language in CAA section 202(a)(1) provides:

> 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.[43]

Since 1977, CAA section 302(g) has defined the term ''air pollutant'' throughout the statute as ''any air pollution agent or combination of such agents . . . which is emitted into or otherwise enters the ambient air.'' [44]

[42] *Chevron U.S.A., Inc.* v. *NRDC,* Inc., 467 U.S. 837 (1984), *overruled by Loper Bright,* 603 U.S. 369; *see* 74 FR 66501, 66502, 66544 (asserting discretion based on statutory ambiguity, including that created by silence); 74 FR 66528, 66542, 66543 (asserting discretion based on statutory ambiguity).

[43] 42 U.S.C. 7521(a)(1).

[44] 42 U.S.C. 7602(g). Notably, the statute does not separately define ''air pollution.''

CAA section 302(h) also provides that any reference to ''effects on welfare includes, but is not limited to, effects on'' the environment, property, transportation hazards, and ''on economic values and on personal comfort and well-being.'' [45]

The EPA proposes that this statutory language is best read as authorizing the Agency to identify and regulate, as an integral part of a rulemaking prescribing emissions standards, air pollutants that cause or contribute to air pollution that itself endangers public health and welfare through local or regional exposures. This proposed interpretation is consistent with the text and structure of the statute, our decades-long implementation of the statute prior to 2009, and background principles of statutory interpretation, including default rules for proximate cause. This proposed interpretation is also consistent with the Supreme Court's decision in *Massachusetts,* which addressed distinct issues and must, as a matter of *stare decisis,* be read in harmony with the Supreme Court's subsequent decisions bearing on the EPA's authority and statutory interpretation in *UARG, West Virginia,* and *Loper Bright.*[46]

Dangerous Air Pollution. The EPA proposes that CAA section 202(a) is best read as authorizing the Agency to regulate air pollutant emissions that cause or contribute to air pollution that endangers public health or welfare through local or regional exposure. For the purposes of this proposed action, we use the phrase local or regional exposure to distinguish air pollution that impacts public health and welfare by its presence in the ambient air from ''air pollution'' consisting of six ''well-mixed'' GHGs that, as conceptualized in the Endangerment Finding, impacts public health and welfare only indirectly and not by its mere presence in the ambient air. As discussed below, this proposal would effectively return the EPA to its interpretation of CAA section 202(a) prior to 2009.

We propose that the terms ''air pollutant'' and ''air pollution'' as used in CAA section 202(a)(1) should be construed in accordance with the specific air pollutants identified for other purposes in the remainder of CAA section 202. Each of these listed air pollutants share the common quality of causing or contributing to air pollution that adversely impacts public health or welfare through local or regional exposure to the air pollution itself. CAA section 202 specifically addresses hydrocarbons (HCs), carbon monoxide (CO), oxides of nitrogen (NO_X), and particulate matter (PM), all of which harm health and the environment through exposure (*e.g.,* inhalation and dermal contact) or by causing or contributing to air pollution that harms health and the environment through exposure (*e.g.,* smog and acid rain).[47] That pattern holds for the criteria pollutants identified in the CAA—CO, lead, ground-level ozone (O_3), nitrogen dioxide (NO_2), PM, and sulfur dioxide (SO_2)—as well as the initial list of hazardous air pollutants in CAA section 112(b)(1).[48] We find it significant that in subjecting a number of air pollutants emitted by new motor vehicles and engines to regulation under CAA section 202, Congress did not include substances that are potentially indirectly harmful to public health or welfare based on elevated global concentrations in the upper atmosphere. That conspicuous omission supports the conclusion that the air pollutants subject to regulation under CAA section 202(a) are those that cause or contribute to air pollution which itself endangers public health or welfare through local or regional exposure.[49]

Put another way, we propose that the air pollutants identified in CAA section 202 and throughout relevant provisions of the CAA are those that cause or contribute to air pollution for which the air pollution *itself,* through local or regional exposure to humans and the environment, endangers public health or welfare.[50] For certain regulated air pollutants, the air pollutants are themselves the dangerous air pollution, *i.e.,* the air pollutants are the air pollution with adverse health and welfare impacts. An example is CO, which can be harmful, and even fatal, to humans at sufficient localized concentrations.[51] For other regulated air pollutants, the air pollutants contribute to dangerous air pollution by interacting with other airborne chemicals or environmental factors such as sunlight to create the dangerous air pollution, *i.e.,* the air pollutants are ingredients that create the dangerous air pollution in combination. An example is acid rain, in which air pollutants such as SO_2 interact locally and regionally with additional airborne chemicals to form acidic precipitation.[52]

The definition of ''air pollutant'' in CAA section 302(g) and the meaning of the undefined terms pollutant, pollution, and air pollution support this reading. As a matter of ordinary language, a pollutant is ''[a] poisonous or noxious substance that contaminates the environment,'' and pollution is ''[t]he harmful addition of a substance or thing into an environment.'' [53] Definitions of air pollution similarly emphasize the emission of ''[c]ontaminants into the atmosphere.'' [54] The central concept is the addition of a contaminant, something, that ''make[s] impure or unclean by contact or mixture.'' [55] CAA section 302(g) is consistent with these definitions, adding only that an ''air pollutant'' is any ''air pollution agent or combination of such agents'' that ''is emitted into or otherwise enters the ambient air.'' [56] Read together with CAA section 202(a)—as the Supreme Court held we must in *UARG*—the underlying concept of dangerousness and contamination reinforces the conclusion that air pollution which endangers public health or welfare is air pollution (caused or contributed to by air pollutants) that itself endangers public health or welfare through local or regional exposures.

The ''air pollution'' addressed in the Endangerment Finding is different in kind. In that decision, the Administrator defined the relevant ''air pollutants'' as six ''well-mixed GHGs'' and the relevant ''air pollution'' as ''the combined mix of'' these GHGs ''which together,

[45] 42 U.S.C. 7602(h).

[46] *See Hohn* v. *United States,* 524 U.S. 236, 252–53 (1998) (Supreme Court decisions ''remain binding precedent until [the Supreme Court] see[s] fit to reconsider them, regardless of whether subsequent cases have raised doubts about their continuing vitality.''); *Rodriguez de Quijas* v. *Shearson/Am. Exp., Inc.,* 490 U.S. 477, 484 (1989) (similar).

[47] *See, e.g.,* 42 U.S.C. 7521(a)(3)(A)(i), (b), (g), (h), (j), (k).

[48] 42 U.S.C. 7412(b)(1).

[49] As discussed in section IV.A.2 of this preamble, the only references to GHGs in the CAA are in *non*-regulatory contexts in which Congress authorized funding for various forms of research and grant programs. The choice to limit such references to non-regulatory solutions further supports the conclusion that the CAA section 202(a) regulatory authority for responding to endangerment does not encompass GHG emissions on the basis of global climate change concerns.

[50] For example, unlike other regulated air pollutants, ''CO_2 is odorless, does not affect visibility and has no toxicological effects at ambient levels,'' Additionally, the Permissible Exposure Limit established by the U.S. Occupational Safety and Health Administration or which diminished performance on cognitive tasks are ''far larger than any plausible ambient outdoor value through the end of the 22nd century.''Add 2025 CWG Draft Report at 2.

[51] U.S. Environmental Protection Agency. (Last updated Apr. 11, 2025). Carbon Monoxide's Impact on Indoor Air Quality: *https://www.epa.gov/indoor-air-quality-iaq/carbon-monoxides-impact-indoor-air-quality.*

[52] U.S. Environmental Protection Agency. (Last updated Mar. 4, 2025). What is Acid Rain?: *https://www.epa.gov/acidrain/what-acid-rain.*

[53] Black's Law Dictionary 1403 (11th ed. 2019).

[54] *Id.*

[55] Am. Heritage Dictionary (5th ed. 2022).

[56] 42 U.S.C. 7602(g).

constitute the root cause of human-induced climate change and the resulting impacts on public health and welfare.'' 74 FR 66516. In contrast to the air pollution addressed expressly in CAA section 202 and elsewhere in the statute, GHGs do not endanger public health or welfare through local or regional exposure. Rather, the Endangerment Finding asserted that GHG ''air pollution'' would *lead to* increases in global temperature and change to ocean pH that, in turn, would *lead to* environmental phenomena, in combination with an open-ended universe of additional factors, which would potentially have adverse public health and welfare impacts of varying severity in certain regions. Regulating GHG emissions based on global climate change concerns requires reading an additional instance of ''cause, or contribute'' into the statute, such that CAA section 202(a) encompasses the 'emission of air pollutants that cause, or contribute to, dangerous air pollution that causes, or contributes to, endangerment of public health or welfare.'

This proposed interpretation is also supported by the best reading of the terms ''cause'' and ''contribute.'' In enacting and amending CAA section 202(a), Congress legislated against background legal principles, including principles of causation and proximate cause.[57] These ''default rules'' are ''presumed to have [been] incorporated, absent an indication to the contrary in the statute itself,'' [58] and nothing in the text of CAA section 202(a) indicates that Congress intended to depart from ordinary legal meaning. As a general matter, there is a point at which harm no longer has a sufficiently close connection to the relevant conduct to reasonably draw a causal link. We propose that emissions from new motor vehicles and new motor vehicle engines in the United States do not have a sufficiently close connection to the adverse impacts identified in the Endangerment Finding to fit within the legal meaning of ''cause'' or ''contribute.'' The Endangerment Finding largely avoided addressing this problem by severing the question whether GHG emissions from new motor vehicle engines contribute to GHG concentrations in the atmosphere from the question whether GHG concentrations in the atmosphere endanger public health and welfare. As discussed in further detail in section IV.A.1 of this preamble, we propose that there is no basis in the statute for severing the inquiry in that way. Nevertheless, even with respect to endangerment and contribution in isolation, we propose that global climate change concerns involve analyzing causal relationships that are too uncertain, too remote, and too confounded by intervening and confounding factors to fit within the terms ''cause'' and ''contribute'' as used in CAA section 202(a). This understanding follows from the position discussed above that CAA section 202(a) and the statute more generally were designed to regulate air pollution with harmful impacts from local and regional exposure that are analyzable by ordinary causation standards.

In proposing this interpretation, we note that a limiting construction is necessary to avoid absurd results and potential conflict with the nondelegation doctrine. Because Congress cannot delegate legislative powers to the Executive Branch, statutes granting an agency regulatory authority must provide an intelligible principle to guide its exercise.[59] Our authority under CAA section 202(a) to ''prescribe . . . standards'' for air pollutant emissions by a class or classes of new motor vehicles and engines is limited by the requirement that the Administrator find such air pollutants cause or contribute to air pollution that may reasonably be anticipated to endanger public health and welfare. We propose that the best reading of the statute circumscribes this authority to air pollution that itself causes or contributes to endangerment of public health or welfare. Under the interpretation adopted in the Endangerment Finding, however, our authority under CAA section 202(a) would have no readily discernible limiting principle, particularly in combination with the authority asserted to sever the analysis of endangerment and causation or contribution. Following the logic of the Endangerment Finding, any ''air pollutant'' emitted at more than *de minimis* volumes would trigger our authority, and the statutory obligation, to prescribe standards so long as the emission contributes to ''air pollution'' that, in turn, potentially contributes to phenomena with predicted adverse impacts on public health and welfare broadly defined. As discussed further below, under this logic, the release of water vapor (H_2O) would meet the standard for regulation because water can be said to result in significant harms and because motor vehicles and engines can be said to ''contribute'' to that harm by emitting non-*de minimis* quantities of water vapor into the upper atmosphere. The EPA would have the authority, and statutory duty, to prescribe standards for water vapor emissions because water vapor is a recognized GHG emitted by motor vehicles and engines as well as the vast majority of other mobile and stationary sources. Because that reading effectively converts CAA section 202(a)(1) into a roaming license to ''prescribe . . . standards,'' we believe the reading proposed herein is more faithful to the governing principles of statutory interpretation.

We further emphasize that this proposed interpretation would effectively return the EPA to its longstanding practice prior to 2009 of applying CAA section 202(a) and related statutory endangerment provisions to air pollution that adversely impacts public health and welfare through local or regional exposure. As noted above, we historically utilized this authority to prescribe standards for pollutants identified in the CAA itself, including NO_X, PM, HC, and CO. The distinction between air pollution that harms public health and welfare through local and regional exposure and global ''air pollution'' consisting of GHG concentrations without any such direct impacts has also played a role in our evaluation of waiver requests under CAA section 209.[60] Even in the Endangerment Finding, the Administrator recognized that we had previously applied CAA section 202(a) to ''a *more typical* local or regional air pollution problem.'' 74 FR 66538 (emphasis added). We propose that in adopting a novel analytical approach in the Endangerment Finding, the EPA failed adequately to address its prior practice and improperly relied on the Supreme Court's decision in *Massachusetts* for the proposition that CAA section 202(a) authorizes emission standards in response to air pollution raising global climate change concerns. As discussed below, *Massachusetts* did not construe the scope of the EPA's authority to regulate under CAA section

[57] *See, e.g., Bank of Am. Corp.* v. *City of Miami,* 581 U.S. 189, 201 (2017); *Lexmark Int'l, Inc.* v. *Static Control Components, Inc.,* 572 U.S. 118, 132 (2014); *Univ. of Tex. Sw. Med. Ctr.* v. *Nassar,* 570 U.S. 338, 347 (2013); *City of Oakland* v. *Wells Fargo & Co.,* 14 F.4th 1030 (9th Cir. 2021) (en banc).

[58] *Nassar,* 570 U.S. at 347.

[59] *See, e.g., Gundy* v. *United States,* 588 U.S. 128 (2019).

[60] *See, e.g.,* ''California State Motor Vehicle Pollution Control Standards; Notice of Decision Denying a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles,'' 73 FR 12156, 12161 (Mar. 6, 2008) (denying California's waiver request for GHG emission standards on the ground that ''the different, and global, nature of the pollution at issue'' requires a different conceptual approach).

202(a), and the Court has since made clear in *UARG* and *West Virginia* that our authority to regulate air pollutants that fit within the Act-wide definition turns on the particular statutory provision that confers authority to regulate.

In *Massachusetts,* the Supreme Court rejected the argument that GHGs are not ''air pollutants'' under the Act-wide definition, reasoning that CAA section 302(g)'s use of the word ''any'' in connection with ''air pollutant agent or combination of such agents, including any physical [or] chemical . . . substance'' was sufficiently broad to encapsulate the combination of GHGs at issue. 549 U.S. at 530. On this basis, the Court stated that the EPA ''has the statutory authority to regulate the emission of such gases from new motor vehicles.'' *Id.* at 532. The Court did not, however, decide whether including GHGs within the definition of ''air pollutant'' meant that we must find that GHGs meet the statutory standard for regulation under CAA section 202(a) because they cause or contribute to air pollution which endangers the public health or welfare. Rather the Court concluded its opinion by clarifying that it ''need not and do[es] not reach the question whether on remand EPA must make an endangerment finding.'' *Id.* at 534.

Consistent with *Massachusetts,* we propose to interpret the CAA as setting out a broad, threshold definition of ''air pollutant'' on an Act-wide basis that must be interpreted in the context of each applicable, particular provision granting regulatory authority in order to determine whether that provision authorizes the EPA to regulate an air pollutant under that particular authority. For purposes of CAA section 202(a), that means that even if GHGs are ''air pollutant[s]'' as defined on an Act-wide basis, they must meet the statutory standard for regulating emissions from new motor vehicles and engines before we may invoke our regulatory authority. Put simply, regardless whether GHGs are ''air pollutants'' as defined in CAA section 302(g), they must still satisfy the same standard as any other ''air pollutant'' by causing or contributing to air pollution which may reasonably be anticipated to endanger public health or welfare.

This understanding is confirmed by *UARG,* in which the Supreme Court distinguished between ''the Act-wide definition'' of air pollutant and the application of that definition to the Act's regulatory provisions. 573 U.S. at 320. The Court specifically addressed the holding in *Massachusetts,* adopting the argument that ''while *Massachusetts* rejected EPA's categorical contention that [GHGs] could not be air pollutants for any purposes of the Act, it did not embrace EPA's [then] current, equally categorical position that [GHGs] must be air pollutants for all purposes regardless of the statutory context.'' *Id.* (cleaned up).

In sum, we propose that CAA section 202(a) does not provide authority to regulate GHGs based on global climate change concerns because that provision authorizes regulating only air pollutants that ''cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.'' The EPA must ''ground its reasons for action or inaction in the statute,'' *Massachusetts,* 549 U.S. at 535, and ''possess[es] only the authority that Congress has provided,'' *NFIB* v. *DOL,* 595 U.S. 109, 117 (2022). In proposing this interpretation, we note that our actions must be consistent with ''the single, best meaning'' of the statute and cannot expand our authority in response to pressing concerns based on statutory silence or ambiguity. *Loper Bright,* 603 U.S. at 400, 411. We seek comment on this proposed interpretation, including the rationales articulated above and any further rationales that commenters believe support, or detract from, this interpretation.

Findings and Standards. The EPA further proposes that CAA section 202(a) requires issuing emission standards together with the findings necessary to invoke our regulatory authority, rather than severing the regulatory action into separate endangerment and standards-setting proceedings. The statute begins by providing that the Administrator ''shall prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines,'' and follows this requirement by describing the scope of the duty to regulate air pollutant emissions ''which, in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.'' We propose that the best reading of the statute requires the Administrator, when prescribing any emission standard for new motor vehicles or engines, to find that the air pollutant or air pollutants emitted by the class or classes of new motor vehicles or engines subject to the standard cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare.

The Endangerment Finding severed this statutory language by finding endangerment and contribution in the abstract for all potential CAA section 202(a) sources with respect to GHGs. In so doing, the Administrator vastly increased the Agency's authority by removing the restrictions Congress placed on the issuance of emission standards. As a result of this new conception of authority, the EPA may issue a single endangerment finding in the abstract with respect to emissions from all sources potentially subject to CAA section 202(a) (and their existing-source counterparts) without addressing the danger posed by any particular source category or the causal role of that particular source category in any identified danger. The EPA has since relied on the Endangerment Finding to prescribe emission standards for various classes of new motor vehicles and engines, as well as a variety of other sources under distinct statutory authorities, without making the requisite findings or assessment of factors necessary to regulate the sources in question.[61] We propose that Congress enacted CAA section 202(a) as an integrated regulatory provision for a reason, and that giving effect to the language of the statute requires the issuance of emission standards only when the Administrator has made an integrated finding of both endangerment and cause or contribution. Put another way, we propose that it is impermissible for the Administrator to make an endangerment finding without prescribing the emission standards required in response to such a finding, and conversely, that it is impermissible to prescribe emission standards without making the source- and air-pollutant specific findings required by the statute.

This proposed interpretation is consistent with the EPA's implementation of CAA section 202(a) and similar provisions of the CAA prior to 2009. In the Endangerment Finding, the Administrator acknowledged that ''typically endangerment and cause or contribute findings have been proposed concurrently with proposed standards under various sections of the CAA, including CAA section 201(a).'' 74 FR 66501. We propose that our historical practice under CAA section 202(a) reflects the better reading of the statute and is entitled to greater weight. As the Supreme Court recently explained, such weight is ''especially warranted when an Executive Branch interpretation was issued roughly contemporaneously with enactment of the statute and remained consistent over time.'' *Loper Bright,* 603 U.S. at 386.

[61] *See* sections II.C, VI.B, and VI.C of this preamble for a summary of the EPA's rulemaking activities in response to the Endangerment Finding.

In departing from the EPA's historical practice in the Endangerment Finding, the Administrator reasoned that ''[t]he text of CAA section 202(a) is silent on this issue'' and ''invoked the procedural discretion that is provided by CAA section 202(a)'s lack of specific direction.'' 74 FR 66501. We propose that CAA section 202(a) is not silent on the issue because the statute sets out an integrated process that requires the EPA to prescribe standards when the Administrator finds certain conditions are met. When Congress intends a multi-step inquiry in the environmental context, it typically says so expressly. In the National Ambient Air Quality Standards (NAAQS) program, for example, the CAA separates our authority to establish and revise the NAAQS under CAA section 108 and 109 from our duties to implement the NAAQS by reviewing State Implementation Plans (SIPs) or promulgating Federal Implementation Plans (FIPs) under CAA section 110 and related statutory provisions.[62] A particularly relevant analogy is Clean Water Act section 303(c)(4), which pairs the Administrator's authority to ''determin[e] that a revised or new [water quality standard] is necessary to meet the requirements of this chapter'' with the requirement that the Administrator ''shall promptly prepare and publish proposed regulations'' after making such a determination and ''promulgate any revised or new standard . . . not later than ninety days after he publishes such proposed standards.'' [63] We further propose that even if CAA section 202(a) were ambiguous or silent in this respect, the Supreme Court recently held in no uncertain terms that ''statutory ambiguity . . . is not a reliable indicator of actual delegation of discretionary authority to agencies.'' *Loper Bright,* 603 U.S. at 411.

Severing the EPA's standards-setting authority from the findings that trigger a duty to exercise that authority shaped the analysis in the Endangerment Finding in a manner that we propose ran counter to the statute. Recall that the Endangerment Finding first projected adverse public health and welfare impacts of global climate change and attributed those adverse impacts to all manmade sources of GHG emission around the world and then, separately, used data from existing CAA section 202(a) sources in the United States to find that new motor vehicles and engines in the United States contributed to global GHG air pollution. The Administrator treated adaptation (adjustments to the effect of climate change that lessen impacts) and mitigation (reductions in emissions and global GHG concentrations unrelated to CAA section 202(a) regulation) as outside the scope. 74 FR 66512. Moreover, the Administrator declined to consider cost, asserting that the Endangerment Finding imposed no regulatory requirements as a standalone action and relying on the Supreme Court's decision in *Whitman* v. *American Trucking Association,* 531 U.S. 457 (2001), that the EPA cannot consider cost in setting and revising the NAAQS under CAA section 109. 74 FR 66515. Nor did the Administrator consider potential beneficial impacts from climate change with respect to whether and which standards would be appropriate. *See* 74 FR 66524 (purporting to compare ''risks and benefits'' only with respect to endangerment).

Severance also shaped all subsequent standards prescribed and revised in reliance on the Endangerment Finding in a manner we propose to conclude was unlawful. The EPA asserted in subsequent rulemakings that there was no need to make particularized findings for the relevant source category because the Endangerment Finding identified public health and welfare dangers and contribution for all CAA section 202(a) source categories. Nor did we consider the impacts of adaptation or mitigation or consider when prescribing standards whether, in light of more recent empirical data, the Endangerment Finding's analysis of endangerment and contribution remained accurate with respect to the source category at issue. As a result, the decision to sever meant that the EPA has never meaningfully considered or invited public comment on the cost, effectiveness, and continued propriety of its GHG regulatory program.

We propose that these considerations should have been taken into account when the 2009 Endangerment Finding intentionally triggered a duty to regulate by invoking our CAA section 202(a) authority. CAA section 202(a)(2) expressly provides that ''[a]ny regulation prescribed under paragraph (1) of this subsection . . . shall'' provide adequate time for ''the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.'' [64] CAA section 202(a)(1) authorizes the Administrator to ''by regulation prescribe'' standards ''in accordance with the provisions of this section'' and does not separately authorize standalone findings, meaning any action taken ''under paragraph (1) of this subsection'' is subject to the considerations in paragraph (2). That statutory language aside, the Supreme Court explained in *Michigan* that ''agency action is lawful only if it rests 'on a consideration of the relevant factors,' '' 576 U.S. at 750 (quoting *State Farm,* 463 U.S. at 43), including ''at least some attention to cost,'' *id.* at 752. We propose that the Administrator erred in analogizing to the NAAQS program and the Supreme Court's decision in *Whitman* to avoid considering costs in the Endangerment Finding. Unlike CAA section 202(a), the language in CAA section 109(b) makes no reference to cost or implementation and focuses solely on safety and an adequate margin to protect public health. Nor does CAA section 109(b) include the lead time and technical feasibility concepts embedded in CAA section 202(a). And whereas CAA section 202(a) sets out an integrated authority to prescribe emission standards when the provision's triggering condition is satisfied, CAA section 109(b) uses mandatory language requiring the EPA to establish certain standards, the content and implementation of which are specified in various provisions throughout Title I of the Act. We further propose that the Supreme Court's decision in *Massachusetts* did not address the question whether the EPA could issue standalone findings or bar the Administrator from taking cost and implementation concerns into account when exercising CAA section 202(a) authority. Rather, *Massachusetts* must be read together with *Michigan,* and the language of CAA section 202(a)(1) must be read in context to ''produc[e] a substantive effect that is compatible with the rest of the law.'' *UARG,* 573 U.S. at 321 (quoting *United Sav. Ass'n of Tex.* v. *Timbers of Inwood Forest Assocs.,* 484 U.S. 365, 371 (1988)).

Endangerment and Cause or Contribute. The EPA also proposes that CAA section 202(a) requires the Agency to evaluate whether source emissions cause or contribution to air pollution and whether that air pollution poses endangerment in a single causal chain, rather than considering these issues in isolation by severing the inquiries. The relevant inquiry is whether ''the emission of any air pollutant from any class or classes of new motor vehicles or

[62] *See* 42 U.S.C. 7408, 7409, 7410.

[63] 33 U.S.C. 1313(c)(4), (c)(4)(B). Various provisions of the Safe Drinking Water Act (SDWA) and Toxic Substances Control Act (TSCA) similarly articulate multi-step processes for determining risk and addressing risk through regulation using language that Congress did not include in CAA section 202.

[64] 42 U.S.C. 7521(a)(2).

new motor vehicle engines,'' in the judgment of the Administrator, ''cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.'' As explained in this section, the emission must cause or contribute to the danger posed by the air pollution to a sufficient extent to satisfy the standard for regulation.

In the Endangerment Finding, the Administrator made two distinct findings based on two distinct sets of assumptions. In the first, the Administrator found that the ''air pollution,'' defined as the combined elevated global concentrations in the upper atmosphere of six ''well-mixed GHGs,'' CO_2, methane, NO_X, HFCs, PFCs, and SF_6, endangered public health or welfare by playing a causal role in global temperature increases and ocean pH changes, which, in turn, were then asserted to play a causal role in environmental phenomena with adverse impacts on public health and welfare. 74 FR 66516. In the second, the Administrator found that the ''air pollutant'' (defined as the combination of same six ''well-mixed GHGs'') emitted by new motor vehicles and engines contributed to the ''air pollution.'' 74 FR 66536. Nowhere in the Endangerment Finding did the Administrator consider the extent to which emissions from CAA section 202(a) sources have a more than *de minimis* effect on the *danger* identified with respect to elevated concentrations of GHGs in the upper atmosphere—let alone whether emissions from any particular class or classes of sources that EPA intended to regulate had such an effect.

Upon review, we no longer believe that the approach taken in the Endangerment Finding was consistent with the language of CAA section 202(a) and the structure of the CAA, which requires making distinct findings for regulating distinct types of emission sources and authorizes different regulatory tools when such standards are met. For example, CAA section 111(b)(1)(A) authorizes the EPA to regulate emissions from listed categories of stationary sources if the Administrator determines those sources emit air pollutants that ''significantly contribute'' to dangerous air pollution.[65] When that standard is met, CAA section 111(b)(1)(B) requires the EPA to regulate such emissions from such sources by setting standards of performance that, among other things, reflect the best system of emission reduction that has been adequately demonstrated in practice.[66] The CAA similarly sets out distinct standards for regulating and distinct modes of regulation for additional major source categories, including vehicles in use, aircraft engines, and separately addresses when and how to respond to international emissions that impact the United States. The Endangerment Finding effectively attributed the total GHG emissions coming from all of these various distinct sources within the United States, as well as from all international sources, to the mobile sources regulated under CAA section 202(a) without having made the requisite determinations for any of those sources and without considering the different regulatory tools Congress authorizes for those sources as compared to CAA section 202(a) sources. The Administrator defined the relevant ''air pollution'' as the combination of six ''well-mixed GHGs'' but found that CAA section 202(a) sources emitted only four of them: CO_2, methane, NO_X, and HFCs. 74 FR 66538. As a result, the ''air pollution'' identified as endangering public health or welfare included PFCs and SF_6, and the ''air pollution'' used to conclude that CAA section 202(a) sources satisfy the regulatory standard did not. Contrary to the EPA's conclusion at the time, 74 FR 66541, that difference is material, as PFCs and SF_6 are asserted to have many times the global warming potential of CO_2.[67] Severing the endangerment and cause-or-contribute analysis allowed the Agency to compare apples and oranges in a manner the statute does not authorize.

The Endangerment Finding also did not limit its analysis of contribution to ''*new* motor vehicles or *new* motor vehicle engines'' in the United States, which are the only sources covered by the EPA's CAA section 202(a) authority.[68] Because the Administrator considered all sources in analyzing the danger posed by elevated concentrations of GHGs in the upper atmosphere, the endangerment analysis necessarily included emissions from foreign and domestic vehicles that had been in use for years or decades and were not ''new.'' Even when analyzing contribution, the Administrator used emission estimates from ''the entire fleet of motor vehicles in the United States for a certain calendar year'' rather than projecting emissions from new motor vehicles and engines over time. 74 FR 66543. That decision increased the absolute contribution figure by orders of magnitude, including because newer vehicles and engines tend to be more efficient and emit less.[69] Difficulties in disaggregating emission data from emission sources, however reasonable, do not license us to read the term ''new'' out of the statutory text.

We are also concerned that severing the endangerment and cause or contribution findings leads to untenable results and lacks any limiting principle. To illustrate the problem, the same logic would allow the EPA to issue emission standards for water vapor (H_2O), another substance emitted by new motor vehicles and engines that is also considered a powerful GHG. Considered in isolation, H_2O concentrations in the atmosphere can be said to endanger public health or welfare by resulting in rain that leads to slip-and-fall injuries, drownings, and damage to crops, livestock, and property, including through pools, rivers, and floodwater, although water vapor is not itself harmful and is necessary to sustain life. Also considered in isolation, CAA section 202(a) sources can be said to ''contribute'' to elevated H_2O concentrations in the atmosphere from all anthropogenic sources, and these emissions of water vapor would thereby assertedly ''contribute'' to global climate effects similar to those attributed to other GHGs. CAA section 202(a) does not contemplate prescribing emission standards for such an omnipresent, naturally occurring, and essential component of the ambient air, and stakeholders have not petitioned for such regulation, because the text requires analyzing the extent to which emissions contribute to the danger. The logic of regulating water vapor would appear to be absurd, but it is the same logic required to regulate GHGs under CAA section 202(a).

We further propose that the decision to sever the analysis of endangerment from the analysis of contribution, combined with the decision to sever the Administrator's findings from any standards prescribed as a result, produced an analysis that is incompatible with the statute. In the Endangerment Finding, the Administrator concluded that anything more than a trivial or *de minimis*

[65] 42 U.S.C. 7411(b)(1)(A).

[66] 42 U.S.C. 7411(a)(1), (b)(1)(B). CAA section 111 also differentiates between new and existing stationary sources in a listed source category and limits the EPA's role with respect to existing sources by authorizing only emission guidelines implemented by the States. 42 U.S.C. 7411(d).

[67] U.S. Environmental Protection Agency. (Last updated Jan. 16, 2025). Understanding Global Warming Potentials: *https://www.epa.gov/ghgemissions/understanding-global-warming-potentials*.

[68] 42 U.S.C. 7521(a)(1) (emphases added).

[69] For additional discussion of improvements in new motor vehicles and engines relative to older vehicles and engines, see section V of this preamble.

contribution to elevated global GHG concentrations by CAA section 202(a) sources was sufficient to trigger regulation because the ''unique, global aspects of the climate change problem tend to support contribution at lower percentage levels of emissions than might otherwise be considered appropriate when addressing a more typical local or regional air pollution problem.'' 74 FR 66538. Because the Endangerment Finding did not consider the standards that the statute requires when the Administrator makes such a finding, we did not consider whether emission standards for new motor vehicles would be futile as a means to address the identified dangers of GHG emissions from all anthropogenic sources. As discussed in sections IV.A and IV.B of this preamble, reducing GHG emissions from all vehicles and engines in the United States to zero would not have a scientifically measurable impact on GHG emission concentrations or global warming potential (2025 CWG Draft Report at 130).[70] It was foreseeable at the time that issuing the Endangerment Finding would trigger a duty to regulate, and that extraordinarily stringent measures would be necessary under *all* of the EPA's separate statutory authorities, and not just CAA section 202(a), to have *any* potentially measurable impact on the identified harm. Additionally, the EPA did not consider ''carbon leakage,'' which ''refers to the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with laxer emission constraints . . . [and] could lead to an increase in their total emissions.'' [71] Foreign governments have recognized that carbon leakage can mitigate or even lead to an increase in total emissions which would significantly impact the claimed benefits of the regulatory actions.[72] Accordingly, we propose that refusing to consider these foreseeable consequences was inconsistent with the statutory scheme and, as explained further below, arbitrary and capricious and an abuse of discretion.

Finally, we propose that the Administrator did not adequately consider the meaning in context of the statutory term ''endanger'' and failed to identify with sufficient rigor the purported danger linked to GHG emissions from new motor vehicles and engines. We propose that ''endanger'' as used in CAA section 202(a) cannot mean merely any predicted negative impact to any public health or welfare value, as that interpretation would render the constraint placed on the EPA's authority to prescribe standards essentially meaningless, thereby violating ordinary principles of statutory interpretation and raising constitutional nondelegation concerns. We further propose that severing the endangerment and contribution inquiries improperly allowed the Administrator to avoid this concern by concluding that new motor vehicle and engine emissions included more than *de minimis* GHG emissions, even if those emissions did not themselves contribute to a danger in any meaningful sense. *See* 74 FR 66543 (asserting that ''contributors must do their part even if their contributions to the global problem, measured in terms of percentage, are smaller than typically encountered''). We therefore seek comment on whether this aspect of EPA's interpretation and application of the statutory provision in 2009 was defective and whether, either on its own or in combination with the other bases and rationales presented here, this issue provides additional grounds for rescinding the Endangerment Finding and resulting GHG emission standards for new motor vehicles and engines.

2. Lack of Clear Congressional Authorization

The EPA further proposes that, at a minimum and in addition to the interpretation set out above, we lack the ''clear congressional authorization'' required under the major questions doctrine to decide the Nation's response to global climate change concerns. *West Virginia,* 597 U.S. at 723 (quoting *UARG,* 573 U.S. at 324). In this subsection, we propose that the major questions doctrine applies to the Endangerment Finding because the global climate change concerns addressed in that action, and the mandatory duty to regulate triggered by that action, present a major question of undeniable political and economic significance. Next, we propose that Congress did not clearly authorize the EPA to decide this question when it empowered the Administrator to ''prescribe . . . standards'' for new motor vehicle and engine emissions under CAA section 202(a). On that basis, we propose to conclude that the Endangerment Finding and resulting GHG emission standards exceeded our statutory authority and should be rescinded. That conclusion follows from the Supreme Court's decisions in *UARG* and *West Virginia* and is consistent with *Massachusetts,* which held that GHGs fell within the definition of ''air pollutant'' but did not interpret the scope of our authority to regulate air pollutants that cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

Applicability of the Major Questions Doctrine. In recent decisions construing the scope of the EPA's statutory authority to regulate GHGs, the Supreme Court has emphasized that the '' 'history and breadth of the authority' '' asserted by an agency and ''the 'economic and political significance' of that assertion'' provide '''a reason to hesitate before concluding that Congress' meant to confer such authority.'' *West Virginia,* 597 U.S. at 721 (quoting *Brown & Williamson,* 529 U.S. at 159–60); *accord UARG,* 573 U.S. at 324. Whether viewed as an ordinary tool of statutory interpretation that looks to the structure of the regulatory scheme [73] or a clear statement rule that implements nondelegation and separation of power principles,[74] the major questions doctrine requires us to identify ''more than a merely plausible textual basis'' when asserting authority to decide a significant policy issue on Congress' behalf. *Id.* at 723.

In *UARG,* the Supreme Court applied the major questions doctrine to reject our attempt to regulate GHG emissions from stationary sources subject to the CAA's prevention of significant deterioration (PSD) and Title V permitting requirements based on the global climate change concerns identified in the Endangerment Finding. 573 U.S. at 311–13.[75] The Court held that the EPA had ''exceeded its statutory authority when it interpreted the Clean Air Act to require PSD and Title V permitting for stationary sources based on their greenhouse gas emissions'' and ''may not treat greenhouse gases as a pollutant'' in the PSD and Title V contexts. *Id.* at 333. In reaching this conclusion, the Court found that our interpretation of the statute and related ''tailoring rule'' that exempted many sources to address workability concerns was ''unreasonable because it would bring about an enormous and transformative expansion in EPA's regulatory authority without clear congressional authorization.'' *Id.* at 324. Citing earlier major questions doctrine

[70] *See* Lomborg, B. (2016). Impact of Current Climate Proposals. *Global Policy,* 7(1) 109–118: *https://doi.org/10.1111/1758-5899.12295.*

[71] Carbon leakage. (2019). *European Commission: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/free-allocation/carbon-leakage_en.*

[72] *See, e.g., id.*

[73] Biden v. Nebraska, 600 U.S. 477, 507–21 (2023) (Barrett, J., concurring).

[74] *West Virginia,* 597 U.S. at 735–51 (Gorsuch, J., concurring).

[75] *See* 42 U.S.C. 7470–92, 7661 *et seq.*

precedents, the Court noted that ''a measure of skepticism'' is required when ''an agency claims to discover in a long-extant statute an unheralded power to regulate 'a significant portion of the American economy,' '' *id.* (quoting *Brown & Williamson,* 529 U.S. at 159), and that ''[w]e expect Congress to speak clearly if it wishes to assign to an agency decisions of vast 'economic and political significance,' '' *id.* (quoting *Brown & Williamson,* 529 U.S. at 160).

In *West Virginia,* the Supreme Court again applied the major questions doctrine to reject our attempt to shift the power grid away from using fossil fuels through GHG emission guidelines for existing power plants under CAA section 111(d). 597 U.S. at 711–15.[76] The Court noted that when interpreting a grant of regulatory authority, the inquiry includes the question ''whether Congress in fact meant to confer the power the agency has asserted.'' *Id.* at 721. The Court explained that the major questions doctrine applies when ''the 'history and breadth of the authority that [the agency] has asserted,' and the 'economic and political significance' of that assertion, provide 'a reason to hesitate before concluding that Congress' meant to confer such authority.'' *Id.* (quoting *Brown & Williamson,* 529 U.S. at 159–60). In such cases, ''both separation of powers principles and a practical understanding of legislative intent make us 'reluctant to read into ambiguous statutory text' the delegation claimed to be lurking there,'' and ''[t]he agency instead must point to 'clear congressional authorization' for the power it claims.'' *Id.* at 723 (quoting *UARG,* 573 U.S. at 324). Applying that standard, the Court held that our statutory authority to establish emission limits under CAA section 111(a)(1) and (d) ''is not close to the sort of clear authorization required by our precedents.'' *Id.* at 732.

We propose that the Endangerment Finding implicates the major questions doctrine for the same reasons the Supreme Court applied it in *UARG* and *West Virginia.* By asserting jurisdiction to regulate in response to global climate change concerns, the EPA '' 'claim[ed] to discover in a long-extant statute an unheralded power' representing a 'transformative expansion in [its] regulatory authority.' '' *West Virginia,* 597 U.S. at 724 (quoting *UARG,* 573 U.S. at 324). We note that the regulatory actions reviewed in *UARG* and *West Virginia* were predicated in part on the Endangerment Finding and propose that the PSD and Title V rules in *UARG* and existing source emission guidelines in *West Virginia* are similar in scope, approach, and economic impact as the GHG emission standards for new motor vehicles and engines promulgated to fulfill the mandatory duty triggered by the Endangerment Finding. As a consequence of the novel approach taken in the Endangerment Finding to endangerment and contribution, our GHG emission standards mandate an increased and faster shift from gasoline-fueled vehicles to electric vehicles on the theory that a substantial reduction in GHG emissions is necessary to address global climate change concerns.[77] We propose that mandating a shift in the national vehicle fleet from one type of vehicle to another is indistinguishable from the emission guidelines at issue in *West Virginia,* which were calculated to force a shift from one means of electricity generation to another.

We further propose it is '' 'highly unlikely that Congress would leave' to 'agency discretion' the decision'' of how much gasoline should be used by vehicles and engines in the United States. *West Virginia,* 597 U.S. at 729 (quoting *MCI Telecomms. Corp.* v. *AT&T Co.,* 512 U.S. 218, 231 (1994)). As the Supreme Court noted with respect to coal-based electricity generation, such a policy decision involves ''basic and consequential tradeoffs,'' and ''Congress certainly has not conferred a like authority upon EPA anywhere else in the Clean Air Act.'' *Id.* Until the Endangerment Finding, moreover, we had never invoked CAA section 202(a) or any other CAA authority to regulate in response to global climate change concerns, whether through a fuel-shifting strategy or any other means. That history is telling because although CAA section 202(a) has existed in substantially similar form since 1967, ''the EPA had never regulated in that manner, despite having issued many prior rules governing'' vehicle and engine emissions. *Id.*

When Congress has addressed GHGs individually or collectively, it has not granted the EPA broad regulatory authority comparable to our authority to ''prescribe . . . standards'' under CAA section 202(a). With respect to HFCs, Congress enacted a comprehensive phaseout scheme in the 2020 American Innovation and Manufacturing (AIM) Act, which includes detailed instructions, timelines, and requirements for implementation and allows some uses to continue under certain conditions.[78] With respect to CO_2, Congress opted for a carrot rather than a stick by authorizing a tax credit to incentivize underground sequestration that mitigates emissions.[79] With respect to methane, Congress amended the CAA in 2021 through the Inflation Reduction Act of 2022 (IRA) to require us to establish a waste emissions charge for certain sources structured to incentivize emissions reductions over time.[80] When addressing GHGs more generally, Congress has used non-regulatory tools that incentivize, rather than mandate, changes in private ordering, including through additional funding provisions in the IRA.[81] We propose that multiple instances of recent legislation addressing GHGs individually and through distinct regulatory approaches suggests that Congress views such policy decisions as economically and politically significant and not adequately addressed by general statutory authorities enacted in response to different problems.

The EPA notes that Congress has continued to revise these air pollutant-specific measures and nonregulatory tools as part of an ongoing national debate over the appropriate response to global climate change concerns. On July 4, 2025, President Trump signed into law significant new legislation enacted by Congress, the One Big Beautiful Bill Act (OBBB),[82] which repealed a number of relevant measures adopted in the IRA and rescinded the EPA's appropriations to carry out a number of funding programs related to GHG emissions. Among other things, Congress prohibited the Agency from collecting the waste emission charge for methane for ten years beyond the original statutory collection date, rescinded funding to administer grant programs in CAA sections 132 and 135–38, and repealed CAA section 134, which had included a section-specific definition of ''greenhouse gas'' applicable to the grant

[76] *See* 42 U.S.C. 7411(d). The EPA had also issued GHG performance standards for new and modified fossil fuel-fired power plants under CAA section 111(b) that triggered the Agency's authority to issue guidelines for existing sources under CAA section 111(d). The new source standards were not before the Supreme Court in *West Virginia.*

[77] 89 FR 27842, 27844.

[78] Public Law 116–260, Div. S, codified at 42 U.S.C. 7675 *et seq.*

[79] 26 U.S.C. 45Q. In 2020, Congress also instructed us to recommend improvements to SDWA permitting procedures for injection wells used in carbon sequestration and appropriated additional fundings for the ''Class VI'' permitting process. Public Law 116–260, Div. G, Title II.

[80] Public Law 117–169, codified at 42 U.S.C. 7436.

[81] *See, e.g.,* Public Law 117–169, codified at 42 U.S.C. 7432–7438. We also note that CAA section 211(o)(2)(B)(ii) requires the EPA to consider ''the impact of the production and use of renewable fuels on the environment, including on . . . climate change,'' among many other factors, in setting volumes under the RFS program. 42 U.S.C. 7545(o)(2)(B)(ii).

[82] Public Law 119–21.

program set out in that section.[83] We propose that this legislation, which was the product of substantial national debate and revised and rescinding funding for provisions of the IRA that were themselves the product of substantial national debate, indicates that the EPA erred in attempting to resolve significant policy issues on its own accord in the Endangerment Finding.

Congress has also recently disapproved several actions taken by the EPA with respect to GHG emissions. On May 19, 2025, President Trump signed into law a resolution adopted by Congress under the Congressional Review Act (CRA) to void our final rule implementing the waste emission charge added to the CAA in 2021.[84] And on June 12, 2025, President Trump signed into law three resolutions adopted by Congress under the CRA to void waivers we granted under CAA section 209 that allowed California and participating States to enforce GHG emission regulations for motor vehicles and engines, up to and including zero-emissions standards that mandated a shift to electric vehicles.[85] We propose that these disapproval resolutions further demonstrate the economic and political significance of the EPA's GHG emission regulations and reinforce the understanding that Congress intends to reserve such major questions of policy for itself. *See West Virginia,* 597 U.S. at 731–32.

Proposed Conclusion. Under our proposal that the major questions doctrine applies, we propose to conclude that the EPA lacks the ''clear congressional authorization'' required for the novel approach taken in the Endangerment Finding and resulting GHG emission standards and must rescind these actions. *West Virginia,* 597 U.S. at 723 (quoting *UARG,* 573 U.S. at 324). We propose that our statutory authority under CAA section 202(a) to ''prescribe . . . standards'' does not clearly authorize the EPA to regulate in response to global climate change concerns or, in issuing such regulations, to mandate a shift from gasoline-powered vehicles to electric vehicles.

In *West Virginia,* the Supreme Court held that our authority ''to establish emission caps at a level reflecting 'the application of the best system of emission reduction . . . adequately demonstrated' '' did not clearly authorize the EPA to issue emission guidelines that addressed global climate change concerns by mandating a shift away from coal-generated electricity. 597 U.S. at 732. Similarly, in *UARG,* the Court held that our PSD and Title V authorities could not be extended to GHG emissions because those provisions ''are designed to apply to, and cannot rationally be extended beyond, a relative handful of large sources capable of shouldering heavy substantive and procedural burdens.'' 573 U.S. at 303.

We propose that these cases control the analysis of our authority under CAA section 202(a). As in *West Virginia,* our statutory authority and the findings required to invoke that authority do not clearly authorize the approach taken in the Endangerment Finding and subsequent regulations. And as in *UARG,* our statutory authority to ''prescribe . . . standards'' for emissions of certain air pollutants does not clearly authorize using the CAA's vehicle-emission control scheme to address global climate change. As discussed above, the Endangerment Finding did not limit itself to considering the impacts of GHG emissions from new motor vehicles and engines. Rather, the Endangerment Finding reviewed the totality of adverse impacts from climate change attributed to all anthropogenic sources of GHG emissions worldwide and asserted jurisdiction over CAA section 202(a) sources by finding they contributed to such impacts by emitting more than *de minimis* quantities of GHGs. That understanding has permeated our GHG emission rulemakings since 2009, and we have attempted to apply that framework to our distinct regulatory authorities for stationary sources and aircraft.

In *Massachusetts,* the Supreme Court disagreed with the EPA's argument that GHGs were not ''air pollutants'' because Congress had not revisited CAA section 202(a) in amending the CAA in 1990. 549 U.S. at 512–13. The Court found that our reliance on *Brown & Williamson* to support that argument was misplaced because unlike the ban on tobacco products at issue in that case, ''EPA jurisdiction would lead to no such extreme measures.'' *Id.* at 531. The Court also found that unlike the Food and Drug Administration's earlier statements on tobacco products, ''EPA had never disavowed the authority to regulate greenhouse gases'' and had issued a memorandum in 1998 suggesting that we had such authority. *Id.*

We propose that *Massachusetts* did not consider or have reason to interpret the scope of the EPA's authority under CAA section 202(a) given our position in the 2003 Denial that GHGs are not ''air pollutant[s]'' under any provision of the statute. Rather, we propose *Massachusetts* rejected our position that GHGs are ''categorically'' excluded from the CAA and remanded for the Administrator to determine whether four GHGs met the standard in CAA section 202(a). *UARG,* 573 U.S. at 320. We further propose that *Massachusetts* must be read together with the Supreme Court's decisions in *West Virginia* and *UARG,* which applied the major questions doctrine to statutory provisions similar to CAA section 202(a). To that end, we seek comment on whether *Massachusetts* applied the major questions doctrine in the first instance,[86] and, if it did, whether that analysis informs the meaning of CAA section 202(a) on its own terms and in light of *UARG* and *West Virginia.* Finally, we propose that the EPA's course of rulemaking has not been limited to emission standards as anticipated in *Massachusetts.* We seek comment on whether a new major questions doctrine analysis is required because the EPA's rulemakings in response to the Endangerment Finding have included electric vehicle mandates that require shifting the national vehicle fleet from one type of vehicle and vehicle fuel to another.

B. Alternative Rationale for Proposed Rescission

In the alternative, the EPA proposes that even if CAA section 202(a) could be read to authorize prescribing GHG emission standards for new motor vehicles and engines, the Endangerment Finding unreasonably applied the statutory standard for regulation to the scientific record and should be rescinded on that basis. This subsection proposes several reasons that the Administrator would exercise his discretionary judgment differently today in light of intervening legal and scientific developments that appear to undermine the assumptions, methodologies, and conclusions of the Endangerment Finding.

1. Climate Science Discussion

The Administrator reviewed available information, including the most recently available scientific information, bearing on the assumptions and conclusions in

[83] 42 U.S.C. 7434(c)(2) (2022).

[84] Public Law 119–2; *see* 90 FR 21225 (May 19, 2025).

[85] H.J. Res. 87; H.J. Res. 88; H.J. Res. 89; *see also Diamond Alt. Energy, LLC* v. *EPA*, No. 24–7, slip op. at 4 n.1 (U.S. June 20, 2025); Statement by the President (June 12, 2025): *https://www.whitehouse.gov/briefings-statements/2025/06/statement-by-the-president/.*

[86] We note that recent Supreme Court decisions have not cited *Massachusetts* as a precedent applying, or declining to apply, the major questions doctrine. *See, e.g., Nebraska,* 600 U.S. 477; *West Virginia,* 597 U.S. 697.

the Endangerment Finding, the impacts of global GHG concentrations on public health and welfare in the United States, and the relative contribution of domestic emissions from new motor vehicles and engines to global GHG concentrations. As previously explained, this review included the 2025 CWG Draft Report, which analyzes empirical data, peer-reviewed studies, and available scientific information bearing on direct human influence on ecosystems and climate, climate response to CO_2 emissions, and impacts on ecosystems and society.[87] The Administrator also considered available assessments by the U.S. Government and relevant international bodies, including the Third, Fourth, and Fifth NCAs reported by the USGCRP and AR5 and AR6 by the United Nations IPCC. The Administrator also considered critiques of the NCAs, and the Fifth NCA in particular, and reviewed these analyses for consistency with OMB information quality guidelines [88] and the transparency and reliability requirements of Executive Order 14303, ''Restoring Gold Standard Science.'' [89]

The Endangerment Finding itself acknowledged significant uncertainties related to climate change and its potential impacts when it stated that the ''inherent uncertainty in the direction, magnitude and/or rate of certain future climate change impacts opens up the possibility that some changes could be more or less than expected, and the possibility of unanticipated outcomes.'' 74 FR 66524. Specifically, the Endangerment Finding identified uncertainties including, but not limited to: the net health impacts of a temperature increase due to decreases in cold-related mortality, 74 FR 66497, 66526; increases in allergenic illnesses and pathogen borne disease vectors, 74 FR 66498; food production and crop yields, including the scope of potential beneficial impacts from climate change, 74 FR 66498, 66535; temperature at the end of the 21st Century, 74 FR 66519; records of temperature before 1600 A.D., 74 FR 66523; estimates and future projections of anthropogenic aerosols and their respective heating or cooling effects, 74 FR 66519; the extent to which human-induced climate change affects the intensity and frequency of extreme weather events, 74 FR 66531; and emissions from future fleet motor vehicles, which could be impacted by a number of technological, economic, and independent regulatory factors, 74 FR 66543.

With respect to projected increases in GHG concentrations and global temperatures, the projections relied upon in the Endangerment Finding appear unduly pessimistic in light of empirical observations made after it was finalized in 2009 through 2024. The Endangerment Finding relied primarily on IPCC AR4 to predict global temperature increases between 1.8 and 4 degrees Celsius by 2100, an extremely wide and variable range that necessarily impacts the existence, extent, and severity of anticipated dangers to public health and welfare. 74 FR 66519. However, as previously noted, IPCC scenarios depicting worst-case, ''business as usual'' assessments have been criticized as misleading (2025 CWG Draft Report at 16),[90] and empirical data suggest that actual GHG emission concentration increase and corresponding warming trends through 2025 have tracked the IPCC's more optimistic scenarios (2025 CWG Draft Report at 18).[91] Recent scientific analyses propose that this divergence may be explained by greater capacity for the climate to reuptake GHGs in the atmosphere through natural processes. Terrestrial ecosystems have demonstrated a greater than anticipated sensitivity to elevated CO_2 concentrations in the form of enhanced plant growth, which results in greater removal of CO_2 from the atmosphere as plants take up CO_2 and return it to the soil through natural life cycles. Similarly, the oceans have demonstrated a greater capacity to take up and process CO_2 (including through aquatic plant life) without resulting in the anticipated negative impacts on pH and ocean ecosystems, including coral reefs (2025 CWG Draft Report at 6–9, 18–20).[92]

Relatedly, recent empirical data and analyses suggest that the Endangerment Finding was unduly pessimistic in attributing health risks from heat waves to increases in global temperature. Notwithstanding increased public attention to heat waves, the data suggest that domestic temperatures peaked in the 1930s and have remained more or less stable, in relative terms, since those highs (2025 CWG Draft Report at 57–60). Moreover, increased urbanization trends contribute to localized changes in temperature, including because an urban footprint traps heat and frustrates natural heat-cycling capacity at a localized and low-atmospheric level (2025 CWG Draft Report at 21–22). Contrary to the Endangerment Finding's assumptions, data continue to suggest that mortality risk from cold temperatures remains by far the greater threat to public health in the United States and around the world at the aggregate level (2025 CWG Draft Report at 112).[93] Although the risk of heat waves featured prominently in the Endangerment Finding, the Administrator acknowledged at the time that significant uncertainties existed about the relative benefits and risks in the United States, and the data since 2009 suggest that the balance of climate change as a whole appears to skew

[87] As stated earlier, the 2025 CWG Draft Report was provided to the EPA on May 27, 2025, and was reviewed and relied upon in formulating this proposal. The EPA understands that DOE is releasing an updated version of the CWG draft report and seeking public comment on the updated report, which includes additional information and typographical corrections that the EPA did not rely upon in formulating this proposal. Interested parties may review and comment on the updated version of the CWG draft report for consideration as part of DOE's efforts at *https://www.energy.gov/topics/climate*.

[88] 67 FR 8452 (Feb. 22, 2002).

[89] Executive Order 14303, 90 FR 22601 (May 29, 2025).

[90] *See also* Hausfather, Z. & Peters, G.P. (2020). Emissions—the 'business as usual' story is misleading. *Nature,* 577, 618–620: *https://doi.org/10.1038/d41586-020-00177-3;* Burgess, M.G. et al. (2021). IPCC baseline scenarios have over-projected CO_2 emissions and economic growth. *Environmental Research Letters,* 16, 014016: *https://doi.org/10.1088/1748-9326/abcdd2;* Pielke, R., & Ritchie, J. (2020). Systemic Misuse of Scenarios in Climate Research and Assessment Social Sciences Research Network. *SSRN: http://doi.org/10.2139/ssrn.3581777*.

[91] *See also* Hausfather, Z. et al. (2019). Evaluating the Performance of Past Climate Model Projections. *Geophysical Research Letters,* 47(1): *https://doi.org/10.1029/2019GL085378;* Scaffeta, N. (2023). CMIP6 GCM ensemble members versus global surface temperatures. *Climate Dynamics,* 60, 3091–3120: *https://doi.org/10.1007/s00382-022-06493-w;* McKitrick, R. & Christy, J. (2020). Pervasive Warming Bias in CMIP6 Tropospheric Layers. *Earth and Space Science,* 7(9), e2020EA001281: *https://doi.org/10.1029/2020EA001281;* Karl, T.R. et al. (2006). *Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences*. U.S. Climate Change Science Program, Subcommittee on Global Change Research.

[92] *See also* Browman, H.I. (2016). Applying organized scepticism to ocean acidification research. *ICES Journal of Marine Science,* 73(3), 529.1–536: *https://doi.org/10.1093/icesjms/fsw010;* Clements, J.C. et al. (2022). Meta-analysis reveals an extreme ''decline effect'' in the impacts of ocean acidification on fish behavior. *PLOS Biology,* 20(2), e3001511: *https://doi.org/10.1371/journal.pbio.3001511;* Friedlingstein, P. et al. (2024). Global Carbon Budget 2024. *Earth System Science Data,* 14(4): *https://essd.copernicus.org/preprints/essd-2024-519;* Haverd, V. et al. (2020). Higher than expected CO_2 fertilization inferred from leaf to global observations. *Global Change Biology,* 26, 2390–2402: *https://doi.org/10.1111/gcb.14950;* Zeng, Z. et al. (2017). Climate mitigation from vegetation biophysical feedbacks during the past three decades. *Nature Climate Change,* 7, 432–436: *https://doi.org/10.1038/nclimate3299*.

[93] *See also* Zhao, Q. et al. (2021). Global, regional, and national burden of mortality associated with non-optimal ambient temperatures from 2000 to 2019: a three-stage modelling study. *The Lancet Planetary Health,* 5(7): *https://doi.org/10.1016/s2542-5196(21)00081-4;* Gasparini, A. et al. (2015). Mortality risk attributable to high and low ambient temperature: a multicounty observational study. *The Lancet,* 386(9991), 369–375: *https://doi.org/10.1016/S0140-6736(14)62114-0*.

substantially more than previously recognized by the EPA in the direction of net benefits, or is at least too uncertain to establish a credible and reliable finding of actionable risk, as discussed further below.

With respect to extreme weather events, the Endangerment Finding projected adverse health impacts from increased frequency and severity of hurricanes, flooding, and wildfires. *E.g.,* 74 FR 66498. Recent data and analyses suggest, however, that despite increased public attention and concern, such extreme weather events have not demonstrably increased relative to historical highs (2025 CWG Draft Report at 65–72, 111).[94] In reviewing the assumptions and conclusions regarding extreme weather events in the Endangerment Finding, the empirical bases asserted appear to be more generalized and unsupported than previously believed and no longer inspire the same degree of confidence. The Administrator further notes that the risks anticipated in the Endangerment Finding resulted, in part, from the Agency's decision at the time to categorically exclude consideration of adaptation and mitigation that should have been incorporated into the analysis as credible and relevant information. We propose that the data on weather events, coupled with the Agency's decision to exclude mitigation and adaptation information from the analysis, fatally undermines the Endangerment Finding's conclusions in this respect.

The Endangerment Finding also identified public health and welfare impacts from projected increases in sea level and related weather and climactic events. However, on this issue, too, recent data and analyses suggest that aggregate sea level rise has been minimal, at least with respect to impacts on the United States, and that sea level has risen in some domestic localities while falling in others (2025 CWG Draft Report at 75–80). The Administrator also questions whether it was appropriate for the Endangerment Finding to exclude any analysis of adaptation with respect to sea level rise in particular. Population growth, infrastructure development, and local and regional planning decisions have been dynamic in coastal areas since 2009, with different trends in different coastal areas and different choices made independently of the EPA's regulatory actions by state and local governments and private entities. The lack of analysis of adaptation generally, and particularly with respect to sea level rise, reduces confidence in the reasonableness, accuracy, and reliability of the assumptions and conclusions in the Endangerment Finding.

The difficulties with parsing the scientific record continue, and they go to the root of what methodologies should be given most credence in making any scientific determinations. The Endangerment Finding consistently cites climate models as showing or predicting warming trends, melting ice, anthropogenic droughts, shrinking snowpack, damage to aquatic systems of life, and increased ocean temperature and acidity. *E.g.,* 74 FR 66523, 66532. However, the data relied upon as inputs to these models may be based on inaccurate assumptions. (2025 CWG Draft Report at 14–22).[95] To name but a few instances: the Northern hemispheric winter snow cover has not decreased in line with the models used in the Endangerment Finding; aquatic life is largely adapted for and has undergone oceanic pH changes throughout the Earth's history, and the data used by the Endangerment Findings and predictions of coral decline has not been supported by empirical data showing an unexpected growth in coral reef ecosystems (2025 CWG Draft Report at 7–12, 40–41).[96] In addition, the models relied upon by the Endangerment Finding may be incorrect with regard to warming in the U.S. Corn Belt given the divergence of recent empirical data from projected trends (2025 CWG Draft Report at 32–47).

The Administrator is also troubled by the Endangerment Finding's seemingly inconsistent treatment of the nature and extent of the role human action with respect to climate change. The Endangerment Finding attributes the entirety of adverse impacts from climate change to increased GHG concentrations, and it attributes virtually the entirety of increased GHG concentrations to anthropogenic emissions from all sources. But the causal role of anthropogenic emissions is not the exclusive source of these phenomena, and any projections and conclusions bearing on the issue should be appropriately discounted to reflect additional factors. Moreover, recent data and analyses suggest that attributing adverse impacts from climate change to anthropogenic emissions in a reliable manner is more difficult than previously believed and demand additional analysis of the role of natural factors and other anthropogenic factors such as urbanization and localized population growth (2025 CWG Draft Report at 14–22, 82–92).[97]

In addition, and as noted in particular contexts above, the Administrator is concerned that the Endangerment Finding did not adequately balance the projected adverse impacts attributed to global climate change with the potential benefits to the United States of increased GHG concentrations, and increased CO_2 concentrations in particular. Unlike virtually every other gas regulated under the CAA, CO_2 is necessary for human, animal, and plant life, and advances public health and welfare by directly impacting plant growth and therefore the price and availability of food, the success of American agricultural and related

[94] *See also* Masson-Delmotte, V. et al. (2021) Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. *Cambridge University Press: https://doi.org/10.1017/9781009157896;* Klotzbach, P.J. et al. (2018). Continental U.S. Hurricane Landfall Frequency and Associated Damage: Observations and Future Risks. *Bulletin of the American Meteorological Society,* 99(7), 1359–1376: *https://doi.org/10.1175/BAMS-D-17-0184.1;* Hodgkins, G.A. et al. (2017). Climate-driven variability in the occurrence of major floods across North America and Europe. *Journal of Hydrology,* 552, 704–717: *https://doi.org/10.1016/j.jhydrol.2017.07.027;* Wuebbles, D.J. et al. (2017). Climate Science Special Report: Fourth National Climate Assessment, Volume I. *U.S. Global Change Research Program: http://doi.org/10.7930/J0J964J6;* Hodgkins, G.A. et al. (2017). Climate-driven variability in the occurrence of major floods across North America and Europe. *Journal of Hydrology,* 552, 704–717: *https://doi.org/10.1016/j.jhydrol.2017.07.027: https://doi.org/10.1016/j.jhydrol.2017.07.027.*

[95] *See also* McKitrick, R. et al. (2012). Long-Term Forecasting of Global Carbon Dioxide Emissions: Reducing Uncertainties Using a Per Capita Approach. *Journal of Forecasting,* 32(5), 435–451: *https://doi.org/10.1002/for.2248.*

[96] *See also* Connolly, R. et al. (2019). Northern Hemisphere Snow-Cover Trends (1967–2018): A Comparison between Climate Models and Observations. *Geosciences,* 9(3), 135: *https://doi.org/10.3390/geosciences9030135;* Annual Summary Report of Coral Reef Condition 2021/22. Continued coral recovery leads to 36-year highs across two-thirds of the Great Barrier Reef. (2022). *Australian Institute of Marine Science: https://www.aims.gov.au/monitoring-great-barrier-reef/gbr-condition-summary-2021-22.*

[97] McKitrick, R. (2013). Encompassing tests of socioeconomic signals in surface climate data. *Climatic Change,* 120(1–2), 95–107: *https://doi.org/10.1007/s10584-013-0793-5;* McKitrick, R. & Nierenberg, N. (2010). Socioeconomic Patterns in Climate Data. *Journal of Economic and Social Measurement,* 35(3–4), 149–175: *https://doi.org/10.3233/JEM-2010-0336;* McKitrick, R. (2021). Checking for model consistency in optimal fingerprinting: a comment. *Climate Dynamics,* 58(1–2), 405–411: *https://doi.org/10.1007/s00382-021-05913-7;* McKitrick, R. (2023). Total least squares bias in climate fingerprinting regressions with heterogeneous noise variances and correlated explanatory variables. *Environmetrics,* 35(2), e2835: *https://doi.org/10.1002/env.2835;* McKitrick, R. (2022). On the choice of TLS versus OLS in climate signal detection regression. *Climate Dynamics,* 60, 359–374: *https://doi.org/10.1007/s00382-022-06315-z;* Connolly, R. et al. (2021). How much has the sun influenced Northern Hemisphere temperature trends? An ongoing debate. *Research in Astronomy and Astrophysics,* 21(6), 131: *https://doi.org/10.1088/1674-4527/21/6/131.*

industries, and the traditional capacity of the United States to export significant food supplies around the world for economic and humanitarian purposes. Recent data and analysis show that even marginal increases in CO_2 concentrations have substantial beneficial impacts on plant growth and agricultural productivity, and that this benefit has been significantly greater than previously believed (2025 CWG Draft Report at 6–7, 104–09).

The Administrator also questions the decision in the Endangerment Finding to consider together all six ''well-mixed'' GHGs rather than analyzing the properties and impacts of each on an individual basis. 74 FR 66537. As noted in the 2008 ANPRM, new motor vehicle and engine emissions of the four GHGs they actually emit have fluctuated and diverged over time, and each has different interactions with the climate and natural environment. Nevertheless, the Endangerment Finding did not undertake individual analyses of these four GHGs and, in fact, aggregated them together along with two additional GHGs not emitted by motor vehicles or motor vehicle engines, thereby undermining the transparency, reliability, and usefulness of the findings. We propose that each of the collectively treated GHGs demonstrates different chemical properties, exhibits different interactions with the natural environment, and present different emissions profiles. The Agency did not analyze, for example, whether the three GHGs other than CO_2 emitted by new motor vehicles and engines could be addressed separately in a manner that would impact the ultimate conclusions of endangerment and contribution. Nor did the Agency analyze whether HFCs, which are emitted not by engines but by air conditioning units, could be addressed separately under CAA section 202(a) or another authority in a manner that would impact the ultimate conclusions of endangerment and contribution.

Finally, the Administrator notes that the analyses relied upon in the Endangerment Finding, including the assessment reports of the IPCC and USGCRP that were available at the time and the subsequent iterations of those reports that have been published since 2009, have been criticized on process and quality grounds. Recently, several public watchdog organizations have raised concerns related to the process and quality of the Fifth NCA, which shares the underlying assumptions and conclusions of prior NCAs and IPCC reports. The groups state that NCA5 does not meet the requirements under Executive Order 14303 and deviated from OMB guidelines on quality, objectivity, utility, and integrity of information disseminated by Federal agencies.

The Administrator takes each of these concerns seriously and seeks public comment on the validity of these concerns and how they should be taken into account when determining whether to finalize any of the alternatives proposed in this action.

2. Proposed Conclusions

Based on this review of the Endangerment Finding and the most recently available scientific information, data, and studies, the Administrator proposes to find, in an exercise in discretionary judgment, that there is insufficient reliable information to retain the conclusion that GHG emissions from new motor vehicles and engines in the United States cause or contribute to endangerment to public health and welfare in the form of global climate change. This proposed conclusion is animated both by the Administrator's commitment to analyzing the statutory standard as a cohesive whole and by the scientific record, which includes too many analytical gaps, uncertainties, and speculative predictions to reach an affirmative endangerment finding and promulgate corresponding emission standards based on such a finding.

As explained above, the Administrator previously asserted in the Endangerment Finding that CAA section 202(a) grants ''procedural discretion'' to sever the findings that trigger regulation from consideration of the resulting regulations and to sever the endangerment analysis from the causation or contribution analysis. We propose that the Administrator would now exercise such discretion differently to ensure greater reliability, transparency, and public accountability in the EPA's invocation of regulatory authority. We note that as a result of the approach taken in the Endangerment Finding, the Administrator's conclusions with respect to new motor vehicles and engines were never subject to SAB review as required by the CAA, and that the public never had the opportunity to participate in a rulemaking that paired the consideration of risk with discussion of the regulatory response, including the effectiveness and cost of potential regulatory approaches. We propose that CAA section 202(a) operates as an integrated whole, and that the EPA's administration of that provision should reflect a reasoned consideration of all relevant factors that is not artificially severed into distinct findings and rulemakings across time.

In addition, we propose that even if intervening legal developments have not foreclosed the regulation of GHG emissions from new motor vehicles and engines under CAA section 202(a), they provide a reasonable basis for the Administrator to approach the inquiry with greater caution today than was applied in the Endangerment Finding. At a minimum, *Loper Bright* confirms that the EPA can no longer rely on statutory silence or ambiguity to imply authorities and discretion not expressly conferred by statute. In exercising the judgment required by CAA section 202(a), the Administrator would choose to adhere as closely as possible to the statutory language, prior Agency implementation of that language, and the initial approach set out in the 2008 ANPRM. We propose that the Administrator's new approach requires rescinding the Endangerment Finding as fundamentally inconsistent with the framework set out in this proposed alternative.

Moreover, we propose that the Administrator would not now find, in light of the ongoing uncertainties in relevant scientific data and analyses bearing on the question, that the evidence is sufficiently reliable to determine that GHG emissions from new motor vehicles and engines meet the standard for regulation in CAA section 202(a). As discussed in the preamble, the Administrator reviewed the scientific record as part of the reconsideration process and no longer has the degree of confidence previously expressed in the analyses relied upon in the Endangerment Finding, the attribution decisions made in the Endangerment Finding, and the balance of projected adverse impacts and beneficial impacts of climate change struck in the Endangerment Finding.

The EPA seeks comment, for the first time since the 2009 Endangerment Finding was proposed, on whether, due to new scientific information and developments since the 2009 Endangerment Finding, there is a strong enough scientific record to support an affirmative finding that GHG emissions from section 202(a) sources cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare. Prompt action is needed to address these concerns, and the Administrator looks forward to stakeholder input on the continuing vitality of the assumptions, predictions, and conclusions animating the 2009 Endangerment Finding.

Additionally, the EPA seeks comment on, if the EPA were to make such a

finding, whether a new comment period would be required and what information would be necessary to provide such a finding. To aid in the EPA's decision making, we also seek comment on the breadth of the Administrator's discretion to exercise judgment by rejecting the approach taken in the Endangerment Finding and the results of adopting a different approach. We also seek comment on any additional aspects of the Endangerment Finding that may have fallen short of the administrative law requirement that agency action be reasonable and reasonably explained. Conversely, we seek comment on why the approach taken in the Endangerment Finding remains reasonable given the legal and scientific developments discussed in this proposal, and the impact, if any, of the EPA's denial of rulemaking petitions in 2022 and 2010 on this alternative proposal. As previously noted, we are also seeking comment on whether the denials in 2022 and 2010 were unlawful for any additional reasons not explored explicitly in this proposal.

V. Separate Bases for Proposed Repeal of GHG Emission Standards

In this section, the EPA proposes repealing existing GHG emission standards for reasons unrelated to the decision to rescind or retain the Endangerment Finding. CAA section 202(a) requires us to consider additional factors before emission standards issued in response to an endangerment finding may go into effect, including cost, the useful life of the vehicles or engines, and the availability of ''requisite technology.'' [98] Consistent with the language and structure of the statute and the Supreme Court's express reservation of this question in *Massachusetts,* we propose to conclude that policy considerations may be taken into account, at a minimum, when setting standards in response to an endangerment finding or, as here, when determining whether to maintain standards already established.[99]

Specifically, we are proposing that there is no ''requisite technology'' for emission control for light- and medium-duty vehicles because reducing GHG emissions from such vehicles to zero would not measurably impact GHG concentrations in the atmosphere or the rate of global climate change. Relatedly, we are proposing that there is no ''requisite technology'' for emission control for heavy-duty vehicles and engines, even if considered in combination with light- and medium-duty vehicle standards. Finally, we are proposing that GHG emission standards may harm, rather than advance, public welfare as defined in the CAA by reducing fleet turnover that improves air quality, safety, consumer choice, and economic opportunity.

Each of these proposals would, if finalized, serve as an independent and sufficient basis for repealing the relevant GHG emission standards as proposed in section VI of this preamble. The EPA seeks comment on all aspects of these alternative proposed bases for repeal of the GHG emission standards as indicated in the remainder of this section.

A. There Is No Requisite Technology for Light- and Medium-Duty Vehicles That Meaningfully Addresses the Identified Dangers of the Six ''Well-Mixed'' GHGs

The EPA proposes to repeal GHG emission standards for light- and medium-duty vehicles because no technology for this source category is capable of preventing or controlling the ''air pollution'' identified as a danger to public health and welfare in the Endangerment Finding, *i.e.,* global concentrations of GHGs in the upper atmosphere. CAA section 202(a)(1) provides that new motor vehicles and engines may comply with emission standards ''as complete systems'' or by ''incorporat[ing] devices to prevent or control'' the air pollution that endangers public health or welfare.[100] CAA section 202(a)(2) further provides that emission standards cannot go into effect until ''after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.'' [101]

As noted elsewhere in this preamble, GHG emissions from the United States were 11 percent of global GHG emissions in 2022,[102] down from 23.5 percent in 2005.[103] The U.S. transportation sector accounted for 28 percent of domestic GHG emissions in 2022, and light- and medium-duty vehicles accounted for 57 percent of U.S. transportation sector GHG emissions.[104] Taken together, the best available data indicate that GHG emissions from light- and medium-duty vehicles in the United States amounted to approximately 1.8 percent of global GHG emissions in 2022. Reducing GHG emissions from light- and medium-duty vehicles in the United States to zero would result in a 1.8 percent decrease in global GHG emissions, which corresponds to an approximate 3 percent reduction in predicted warming trends (2025 CWG Draft Report at 130).[105] To note, these percentages do not account for trends demonstrating that the United States has been decreasing absolute GHG emissions while other countries like China are significantly increasing their GHG emissions.[106]

Global warming trends from 1979 to 2023, the period with the best available data, were determined to a precision (or margin of error) of plus or minus 15 percent total (*id.*). An estimated 3 percent reduction in global warming trends is well below the scientific threshold for measurability and is not a reliable measure for regulatory purposes.

By defining global GHG concentrations in the upper atmosphere as the relevant threat to public health and welfare in the United States, the Endangerment Finding identified a problem that the regulatory tools Congress provided under CAA section 202(a) are simply unable to meaningfully address. Notably, that action defined the relevant ''air pollution'' as six ''well-mixed'' GHGs, meaning the combination of GHGs rather than an individual air pollutant that could be emitted by certain sources at greater or lesser levels and would be more amenable to effective prevention and control. 74 FR 66537. To qualify as a ''requisite technology'' with any measurable impact on the identified danger, an engine design or device would need to *remove* GHGs already present in the atmosphere and would no longer qualify as an *emission* standard for the new motor vehicle or motor vehicle engine.

Additionally, the ''requisite technology'' to meet the identified danger would, at minimum, require a complete change from internal

[98] *See* 42 U.S.C. 7521(a)(1)–(2), (a)(3)(B).

[99] *See Massachusetts,* 549 U.S. at 534–35 (''We need not and do not reach the question whether on remand EPA must make an endangerment finding, or whether policy concerns can inform EPA's actions in the event that it makes such a finding.'').

[100] 42 U.S.C. 7521(a)(1).

[101] 42 U.S.C. 7521(a)(2).

[102] U.S. Environmental Protection Agency. (Last updated Mar. 31, 2025). Global Greenhouse Gas Overview: *https://www.epa.gov/ghgemissions/global-greenhouse-gas-overview.*

[103] 74 FR 66539.

[104] U.S. Environmental Protection Agency. (Last updated July 1, 2025). Inventory of U.S. Greenhouse Gas Emissions and Sinks: *https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.*

[105] *See also* U.S. Transportation Sector Greenhouse Gas Emissions 1990–2022. (2024). United States Environmental Protection Agency 89 FR 11275 (Feb. 14, 2024); Statistical Review of World Energy. (2024). *Energy Institute: https://www.energyinst.org/statistical-review.*

[106] Crippa, M. et al. (2023). GHG emissions of all world countries. *Publications Office of the European Union: https://doi.org/10.2760/953322.*

combustion engines to EVs or another zero-emissions technology. We propose that this form of fuel switching is analogous to the generation-shifting approach we attempted to take for existing stationary sources and that was held to be illegal in *West Virginia.* As explained further below, even a complete shift toward EVs or other zero-emission vehicle and engine technologies in the United States would not reliably and meaningfully reduce elevated global concentrations of GHGs and, therefore, not reliably and meaningfully reduce the risks of climate change asserted in the Endangerment Finding. Given the relatively low share of total global anthropogenic emissions, new motor vehicles and engines in the United States would need to remove GHGs from the atmosphere to have the potential for a reliable impact on GHG concentrations and potential impacts, particularly when viewed in light of increased growth in foreign emissions sources.

The EPA seeks comment on this proposed rationale, including on the proper interpretation of ''requisite technology,'' the appropriate standard for measuring pollution prevention and control, and the scientific threshold for determining measurable impacts on trends in climate change.

B. There Is No Requisite Technology for Heavy-Duty Vehicles That Addresses the Identified Dangers of the Six ''Well-Mixed'' GHGs

For similar reasons, the EPA also proposes to repeal GHG emission standards for heavy-duty vehicles because there is no requisite technology capable of preventing or controlling the ''air pollution'' identified in the Endangerment Finding. Heavy-duty vehicles account for an even lower percentage of GHG emissions in the U.S. transportation sector than light- and medium-duty vehicles: 23 percent, as compared to 57 percent.[107] Therefore, of the global GHG emissions in 2022, heavy-duty vehicles contributed approximately 0.7 percent. If all heavy-duty vehicles in the U.S. no longer emitted GHGs, that would only result in a decrease of 0.7 percent of all worldwide GHG emissions. As noted in the previous subsection, that low figure corresponds to a predicted warming impact well below the measurability threshold because warming trends are determined at a precision of plus or minus 15 percent (2025 CWG Draft Report at 130).

The EPA establishes light- and medium-duty vehicle and heavy-duty vehicles separately under distinct grants of authority in CAA section 202(a) and must justify actions taken with respect to each source category separately. We note, however, that even when considered together, the impact of reducing all GHG emissions from motor vehicles and motor vehicle engines to zero would not result in a measurable impact on trends in climate change. A combined 2.5 percent reduction in global GHG emissions would not result in a more than *de minimis* impact on trends in climate change and would not demonstrate a requisite technology for regulatory purposes.

C. Eliminating GHG Emissions From All Motor Vehicles Would Be Futile

The EPA is proposing that the Agency must consider the impacts of making an Endangerment Finding and cannot arbitrarily separate parts of a sentence within different regulations. Here, we propose that this interpretation means the Agency should not and need not make an endangerment finding under CAA section 202(a)(1) when the regulatory authority conferred by that provision would have no meaningful impact on the identified dangers. As discussed in subparts A and B of this section, we propose that there is no requisite technology that would result in meaningful changes to the impacts of climate change. Whereas the determination in subparts A and B was based on the statutory language within CAA section 202(a)(2), this subpart is based on the statutory language in CAA section 202(a)(1).

Specifically, we propose that when considering whether to make an endangerment finding, the Administrator should consider the ability of the EPA's CAA section 202(a)(1) authority to meaningfully address the identified risks. As noted above, the Endangerment Finding itself recognized that the relative contribution of GHG emissions to global concentrations from new motor vehicles and engines in the United States is small, and recent data and analyses demonstrate that the share has significantly decreased since 2009. Under the circumstances, even a complete elimination of all GHG emissions from new motor vehicles and engines would not address the risks attributed to elevated global concentrations of GHGs. We propose that this futility further demonstrates that CAA section 202(a) does not, as a matter of text and structure, authorize or require the EPA to prescribe emission standards for GHG emissions from new motor vehicles and engines. We further propose that it was improper for the Agency to attempt to get around this problem in the Endangerment Finding by asserting that parties regulated under CAA section 202(a) must ''do their part'' when, in reality, only dramatic reduction in foreign emissions, as well as reductions from domestic sources regulated under other provisions of the CAA, would have any meaningful impact on the global climate change concerns asserted in the Endangerment Finding. The CAA does not authorize the EPA to regulate international sources of emissions, and the statute provides distinct regulatory authority, subject to distinct requirements and standards, for other domestic sources.

D. More Expensive New Vehicles Prevent Americans From Purchasing New Vehicles That Are More Efficient, Safer, and Emit Fewer GHGs

The EPA also proposes to repeal GHG emission regulations for new motor vehicle and motor vehicle engines because the resulting increase in price disincentivizes consumers from purchasing new vehicles and keeps less efficient vehicles on the road for longer.[108] Complying with our GHG emission standards often requires manufacturers to design and install new and more expensive technologies, thereby increasing the price of new vehicles and reducing consumer demand. More expensive new vehicles are cost prohibitive for some consumers, and those consumers are likely to turn to the used vehicle market or continue using an older vehicle.[109]

With respect to commercial vehicles, it is widely understood that many commercial vehicle owners and commercial fleet operators consider the total cost of ownership in determining when to purchase new commercial vehicles. The total cost of ownership involves many factors, including, for example, not only vehicle price, but also owning and operating costs (*e.g.,* service and maintenance costs and fuel costs). Depending on the impacts of the GHG regulations on the specific vehicle category and the considerations relevant to the commercial vehicle purchaser, the impacts of GHG regulations may result in a decrease in new commercial vehicle sales. We also note that commercial vehicle owners and fleet operators may incur additional costs

[107] U.S. Environmental Protection Agency. (Last updated July 1, 2025). Inventory of U.S. Greenhouse Gas Emissions and Sinks: *https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.*

[108] For additional discussion on this topic, *see* 85 FR 24174 (Apr. 30, 2020).

[109] A discussion of the impact of higher vehicle prices on slowing fleet turnover can be found at 85 FR 24626 (Apr. 30, 2020).

associated with ongoing compliance obligations under the GHG standards for an applicable model year, including testing and reporting requirements that are reflected in the total cost of ownership but not necessarily the vehicle price.[110]

All other things being equal, an increase in the price of new vehicles can result in consumers keeping their vehicles for longer periods, delaying the purchase of new vehicles, and decreasing fleet turnover. Contrary to the goals of the EPA's GHG emission standards and the intended purpose of CAA section 202(a), a delay in fleet turnover can negatively impact air quality because older vehicles tend to emit higher levels of air pollutants, including criteria pollutants and hazardous air pollutants, regulated by the EPA.[111] Slowing fleet turnover is of particular concern with respect to the EPA's 2024 vehicle GHG rules because of the large increase in vehicle technology costs which will likely lead to large increases in purchase prices, and the impact battery electric and fuel cell vehicle technologies will have on purchasing decisions of consumers (for light-, medium-, and heavy-duty vehicle buyers). Increased prices and some consumers rejecting battery electric and fuel cell vehicle technologies may lead consumers to hold on to their existing vehicles longer. Vehicles are more likely to emit less air pollution with each subsequent model year because of improvements in technology, ordinary wear and tear that decreases the effectiveness of installed technology, and greater stringency in more recent regulations for criteria pollutants and hazardous air pollutants.

For these reasons, the EPA has serious concerns that its GHG standards may be harming air quality by raising prices and reducing fleet turnover. We seek comment on this proposed basis for repeal, including on the economics of fleet turnover, the relative efficiency and emission reductions achieved by newer vehicles, modeling of the changes vehicle criteria pollutant and air toxic emissions as well as changes in upstream emissions, modeling of potential changes in air quality (including ozone and particulate matter) and the potential costs to air quality of retaining standards that may slow fleet turnover as compared to the potential benefits of retaining GHG emission standards in response to global climate change concerns.

In addition, the EPA notes that greater availability of new vehicles at lower prices furthers public welfare by promoting vehicle safety and consumer choice. New vehicles must meet all Federal Motor Vehicle Safety Standards (FMVSS), which NHTSA continually updates over time to respond to new concerns and to incorporate improvements in safety technology. Manufacturers install technologies to meet these safety requirements and may also include newer safety features not required by regulation. NHTSA has found that newer vehicles offer improved safety features and designs, leading to reduced fatalities and injuries in crashes relative to older vehicles.[112] A delay in the turnover of the fleet also could lead to a higher risk to drivers and passengers and delay the safety benefits provided by new vehicles, thereby harming the public welfare in a more direct way than the global climate change impacts animating the EPA's GHG standards.

Moreover, the EPA notes that the ability to own a vehicle is an important means to unlock economic freedom and participate in society as an employee, consumer, and community member. Transportation mobility is essential to economic and social mobility, and there are no readily available substitutes for passenger vehicles in many urban and virtually all non-urban communities throughout the United States. By increasing the price of new vehicles and existing vehicles subject to the standards at manufacture, our GHG emission standards may prevent some people from accessing the benefits of vehicle ownership. For example, in EPA's 2024 vehicle GHG rules, the EPA projected significant increases in vehicle technology costs which we estimated would be passed on to consumers as price increases.[113] In addition, the 2025 OBBB ended the IRA's 30D new clean vehicle tax credit before the end of 2025 (while the IRA allowed for this tax credit through 2032). This significant change will increase the effective price of many new battery electric, plug-in hybrid electric, and fuel cell vehicles, including leased vehicles.

The EPA seeks comment on these additional rationales, including on whether such public welfare considerations can and should be considered when prescribing and revising emission standards under CAA section 202(a). As noted earlier in this preamble, Congress defined ''effects on welfare'' broadly in CAA section 302(h) to include, but not be limited to, ''hazards to transportation, as well as effects on economic values and on personal comfort and well-being.'' 42 U.S.C. 7602(h). We seek comment on how to give effect to this statutory language as incorporated into the reference in CAA section 202(a) to effects on ''public health or welfare.'' We further seek comment as a general matter on whether the Endangerment Finding and resulting regulations have resulted in disbenefits, that is, on any public health and welfare harms that may flow from the Endangerment Finding and resulting regulations themselves.

VI. Proposed Repeal of GHG Emission Standards

Consistent with the proposed rescission of the Endangerment Finding in section IV.A and IV.B of this preamble, the additional considerations in section V of this preamble, and the discussion of legal authority in section III of this preamble, the EPA is proposing to repeal all GHG emission standards for light-duty vehicles, medium-duty vehicles, heavy-duty vehicles, and heavy-duty engines. This includes emission standards for the subset of four of the six ''well-mixed GHGs'' whose elevated concentrations in the upper atmosphere the 2009 endangerment finding identified as the ''air pollution'' in question that are actually emitted by such vehicles and engines—CO_2, N_2O, methane, and HFCs—as well as the compliance provisions for the GHG standards. These proposed changes would apply to all MYs of vehicles and engines, including MYs that have completed manufacture prior to the effective date of any final rule.

Under the proposed revisions, manufacturers may in some cases already be changing their production processes to apply updated emission control information labels for vehicles and engines. Manufacturers may also already be revising warranty statements provided with their engines and vehicles. We also note that this

[110] *See* section VI.C of this preamble for a discussion of the heavy-duty vehicle and engine GHG regulatory requirements and compliance obligations.

[111] A discussion of the impact of higher vehicle prices on slowing fleet turnover and thus increasing emissions can be found at 85 FR 24186 and 25039 (Apr. 30, 2020).

[112] U.S. Department of Transportation, National Highway Traffic Safety Administration. How Vehicle Safety Has Improved Over the Decades: *https://www.nhtsa.gov/how-vehicle-safety-has-improved-over-decades.*

[113] For a discussion of this topic, see chapter 4.2 of the Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Buty and Medium-Duty Vehicles final rule RIA, *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019VPM.pdf,* and Chapter 3 of the Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles: Phase 3 final rule RIA, *https://nepis.epa.gov/Exe/ZyPDF.cgi/P101ABVT.PDF?Dockey=P101ABVT.PDF.*

proposed action would not, if finalized, require manufacturers to adapt immediately if doing so would raise timing concerns. Unlike the GHG emission standards we propose to repeal, this proposed action would increase flexibility and not mandate any particular technology response. Manufacturers will have no vehicle technology mix constraints which arise from the EPA GHG standards and will be free to produce a range of technologies, including gasoline, diesel, alternative fuels, and plug-in electric vehicles. Furthermore, we have adequate statutory authority to approve manufacturers' requests to continue to offer a warranty that is more generous than required under regulations, and to include information on emission control information labels that is more than required under the proposed regulations. Thus, we do not anticipate material compliance difficulties on the part of manufacturers if this repeal action is finalized as proposed.

In section VI.A of this preamble, we discuss the anticipated impacts of the proposed repeal of GHG emission standards under CAA section 202(a) on the overall regulatory scheme for parties currently subject to the standards. As explained in this section and elsewhere in this preamble, we are not proposing to reopen or substantively revise any emission standards for criteria pollutants or hazardous air pollutants or to reopen or substantively revise any regulatory provisions related to NHTSA's CAFE standards or the EPA's role in administering EPCA and EISA. Moreover, this proposed action would not impact Federal preemption for motor vehicle and engine emission standards under CAA section 209(a) or under EPCA and EISA, including with respect to GHGs.

In section VI.B of this preamble, we describe the light-duty (LD) and medium-duty (MD) vehicle program and the proposed changes to the GHG regulations for that program. In section VI.C of this preamble, we describe the heavy-duty (HD) engine and vehicle program and proposed regulatory changes. We request comment on all proposed changes described in this section, including on any additional regulatory provisions for engines and vehicles that should be removed as part of repealing the GHG standards or should be retained to effectuate unrelated standards that we are not proposing to repeal or revise. To aid in public participation, we have submitted a memorandum to the docket that includes redline text highlighting all proposed changes to the regulations.[114]

The EPA's engine and vehicle programs are codified in Title 40 of the CFR. Specifically, the standard-setting parts for light- and medium-duty vehicles are located in 40 CFR part 85 and 86. The standard-setting part for heavy-duty engines is located in 40 CFR part 1036 and the standard-setting part for heavy-duty vehicles is 40 CFR part 1037. Each standard-setting part includes regulations describing emission standards and related requirements and compliance provisions for certifying engines or vehicles. As explained in this section and elsewhere in this preamble, the EPA is proposing to retain measurement procedures, reporting requirements, and credit provisions for the light-duty program necessary for demonstrating compliance with NHTSA's CAFE standards and fuel economy labeling to meet our statutory obligations under EPCA and EISA. We consider any changes to those requirements as outside the scope of this rulemaking and may consider changes to these provisions, as appropriate, in a future rulemaking. Further, as explained in this section and elsewhere in this preamble, we are not proposing to reopen or substantively revise emission standards or compliance provisions related to criteria pollutant exhaust emissions (*i.e.,* oxides of nitrogen (NO_X), hydrocarbons (HC), particular matter (PM), and carbon monoxide (CO)), air toxic emissions, or evaporative and refueling emissions.[115] We may consider those issues, as appropriate, in future rulemakings.

A. Scope and Impacts of Proposed Repeal

The EPA is proposing to repeal all regulatory provisions relating to our GHG emission programs for light- and medium-duty vehicles and heavy-duty vehicles and engines on the bases set forth in sections III.A, III.B, and IV of this preamble. If finalized, any one of these alternative proposals would provide a sufficient basis for repealing our existing GHG regulations for new motor vehicles and new motor vehicle engines. Finalizing the proposed rescission of the Endangerment Finding as set out in section IV.A would provide sufficient basis for repeal because the EPA would lack statutory authority to regulate emissions based on global climate change concerns under CAA section 202(a). Finalizing the proposed rescission of the Endangerment Finding as set out in section IV.B would provide sufficient basis for repeal because the Administrator would conclude that the scientific evidence of endangerment and contribution is too uncertain to satisfy the standard for regulation under CAA section 202(a). And finalizing the proposed rationales set out in section V would provide sufficient basis for repeal, separately or in combination, because the EPA would conclude that our GHG emission standards do not further public health and welfare and cannot go into effect.

The repeal proposed in this NPRM is limited to the regulatory provisions for GHG emission standards found in 40 CFR parts 85, 86, 1036, and 1037, with minor conforming adjustments to unrelated emission standards for new motor vehicles and engines in 40 CFR parts 600 and 1039. As detailed in subparts B and C of this section, this NPRM is not proposing to revise emission standards for criteria pollutants or air toxics. The EPA may reconsider and propose to revise the regulatory provisions for those programs in a separate rulemaking action. Similarly, this NPRM is not reopening or proposing to revise regulatory provisions necessary for NHTSA's CAFE standards or the EPA's co-administration of EPCA and EISA. Accordingly, we are not seeking public comment on the substance of these distinct regulatory programs and will consider such comments outside the scope of this rulemaking.

For this reason, the proposed repeal would not impact Federal preemption under EPCA, as amended by EISA, related to fuel economy standards. EPCA provides that when ''an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter'' [116] unless the standards are identical or apply only to vehicles obtained for the use of the State or political subdivision.[117] If finalized, this action would not reopen or revise any fuel economy standards or alter the EPA's statutory role in co-administering

[114] Memorandum to Docket EPA–HQ–OAR–2025–0194, ''Redline Version of EPA's Proposed Regulations for the Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards.'' August 2025.

[115] In this proposed rulemaking, NO_X, HC, PM, and CO are sometimes described collectively as ''criteria pollutants'' because they are either criteria pollutants under the CAA or precursors to the criteria pollutants ozone (O_3) and PM.

[116] 49 U.S.C. 32919(a).

[117] 49 U.S.C. 32919(b)–(c).

any such standards, including NHTSA's CAFE standards.

The proposed repeal also would not impact Federal preemption of emission standards for new motor vehicle and engine emission standards. CAA section 209(a) provides that ''[n]o State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part,'' including ''certification,'' ''inspection'' or ''approval'' requirements ''relating to the control of emissions from'' such vehicles or engines.[118] Because new motor vehicles and engines currently subject to GHG emission standards would remain subject to Title II of the CAA, the statute would continue to preempt ''any'' State or local ''standard relating to the control of emissions.'' Relatedly, the CAA would continue to preempt Federal common-law claims for GHG emissions because ''Congress delegated to EPA the decision whether and how to regulate'' such emissions. *Am. Elec. Power Co.* v. *Connecticut,* 564 U.S. 410, 426 (2011). We would retain our authority to prescribe emission standards for any air pollutant that, in the Administrator's judgment, causes or contributes to air pollution that may reasonably be anticipated to endanger public health or welfare. The bases for repeal proposed in this action would not foreclose us from regulating CO_2, methane, NO_X, HFCs, PFCs, or SF_6 emissions from new motor vehicles or engines if the Administrator determines that one or more of those gases meet the requirements for regulation under CAA section 202(a), as discussed herein. As noted above, we seek comment on the continued preemptive effect of the CAA in the event that the EPA finalizes the proposed rescission or otherwise concludes that it lacks authority to regulate GHG emissions under CAA section 202(a) or any other specific regulatory provision of the CAA.

The EPA's engine and vehicle programs are codified in Title 40 of the CFR. Specifically, the standard-setting parts for light- and medium-duty vehicles are located in 40 CFR parts 85 and 86. The standard-setting part for heavy-duty engines is located in 40 CFR part 1036 and the standard-setting part for heavy-duty vehicles is 40 CFR part 1037. Each standard-setting part includes regulations describing emission standards and related requirements and compliance provisions for certifying engines or vehicles.

[118] 42 U.S.C. 7543(a).

B. Light- and Medium-Duty Vehicle GHG Program

This subpart provides background on the EPA's light-duty and medium-duty vehicle GHG emission programs. In general, through a series of rulemakings beginning with Model Year 2010 for light-duty vehicles and Model Year 2014 for medium-duty vehicles, the EPA increased the stringency of the GHG standards for these vehicles over time, in particular the CO_2 standard. Section VI.A.2 of this preamble describes the proposed changes to the light-duty and medium-duty vehicle GHG regulations.

1. Background on the Light- and Medium-Duty Vehicle GHG Program

In 2010, the EPA relied on the Endangerment Finding to adopt the first GHG emission standards for passenger cars and light trucks for MYs 2012 through 2016 in a joint rulemaking with NHTSA.[119] In 2012, the EPA and NHTSA adopted another set of GHG standards (issued by EPA) and fuel economy standards (issued by NHTSA) for passenger cars and light trucks for MYs 2017 and later in a joint rulemaking.[120] In 2020, the EPA and NHTSA revised the standards that had previously been adopted and extended them for MYs 2021 through 2026.[121] In 2021, we further revised GHG standards for passenger cars and light trucks for MYs 2023 through 2026.[122] For medium-duty vehicles, we initially adopted GHG standards as part of the Phase 1 and Phase 2 heavy-duty GHG standards, as described in section VI.B.1 of this preamble. In 2024, we adopted new standards for passenger cars, light trucks, and medium-duty vehicles starting in MY 2027, effectively combining standards that had previously been maintained separately.[123]

The EPA has also taken various actions to comply with statutory obligations under EPCA and EISA. Enacted in 1975, EPCA requires NHTSA to establish a regulatory program for motor vehicle fuel economy (now known as CAFE standards) and requires the EPA to establish measurement procedures, data collection procedures, and rules for calculating average fuel economy values in support of NHTSA's CAFE standards. In 2007, Congress amended EPCA by enacting EISA, which required continuing increases in the stringency of CAFE standards for passenger cars and light trucks through MY 2020. EISA also authorized new fuel consumption standards for medium-duty vehicles and heavy-duty engines and vehicles.[124] Those standards, and the EPA's heavy-duty engine and vehicle GHG programs, are detailed in section VI.B of this preamble.

To comply with EPCA and EISA, the EPA has adopted regulations for fuel economy measurements, calculations, and reporting under 40 CFR part 600. The regulation at 40 CFR part 600 now includes additional provisions for measuring, calculating, and reporting fuel consumption values for medium-duty vehicles. This regulatory structure was designed to maximize efficiency within the Federal government and minimize the burden on the engine and vehicle manufacturers by centralizing data submission. We share information with NHTSA as needed to support implementation of NHTSA's fuel economy and consumption standards.

2. Proposed Changes to the Light- and Medium-Duty Vehicle GHG Regulations

The EPA's light-duty and medium-duty vehicle emission regulations are spread across three CFR parts. 40 CFR part 85 includes various general compliance provisions for both criteria pollutant and GHG emissions. Many of those provisions apply equally to highway motorcycles. 40 CFR part 86 includes emission standards and certification provisions for both criteria pollutant and GHG emissions. 40 CFR part 600 includes measurement and reporting procedures related to fuel economy and GHG standards and to fuel economy labeling.

In the following subsections, we describe our proposed removal and amendment of specific portions of each of these regulatory parts. In general, the approach taken in this proposal is to remove the MY 2012 and later GHG emission standards for passenger cars and light trucks and the MY 2014 and later GHG emission standards for medium-duty vehicles. We also propose to remove the testing and reporting requirements associated with the GHG emission standards. In keeping with our obligations under EPCA, as noted in section VI.A.1 of this preamble, we are not proposing to remove the testing and reporting requirements related to CAFE standards for passenger cars and light trucks and are not reopening those requirements. We request comment on the proposed regulatory changes and whether additional changes should be considered.

[119] 75 FR 25324 (May 7, 2010).

[120] 77 FR 62624 (Oct. 15, 2012).

[121] 85 FR 24174 (Apr. 30, 2020).

[122] 86 FR 74434 (Dec. 30, 2021).

[123] 89 FR 27842 (Apr. 18, 2024).

[124] 49 U.S.C. 32902(k).

a. 40 CFR Part 85—Compliance Provisions for Light- and Medium-Duty Vehicles

In general, we propose to amend 40 CFR part 85 to remove all references to GHG emission standards and related provisions while retaining provisions that support our criteria pollutant emission program. In this subsection, we describe several proposed amendments that are necessary to remove GHG-related provisions from 40 CFR part 85 while ensuring that criteria pollutant emission standards are not substantively impacted. Table 1 provides a summary of the proposed amendments to 40 CFR part 85.

TABLE 1—SUMMARY OF PROPOSED CHANGES TO LIGHT-DUTY AND MEDIUM-DUTY HIGHWAY ENGINE REGULATIONS UNDER 40 CFR PART 85

40 CFR part 85	Sections proposed to amend
Subpart F—Exemption of Clean Alternative Fuel Conversions From Tampering Prohibition	85.525.
Subpart P—Importation of Motor Vehicles and Motor Vehicle Engines	85.1515.
Subpart S—Recall Regulations	85.1803, 85.1805.
Subpart T—Emission Defect Reporting Requirements	85.1902.
Subpart V—Warranty Regulations and Voluntary Aftermarket Part Certification Program	85.2103.

The regulations at 40 CFR part 85, subpart F, provide an exemption from the general tampering prohibition for clean alternative fuel conversions. Specifically, the regulations describe how anyone modifying an in-use vehicle to run a different fuel can demonstrate that the fuel conversion maintains a level of emission control that qualifies them for an exemption from the tampering prohibition. This exemption generally allows for the modifying of vehicles already certified to emission standards in a way that does not cause the modified vehicle to exceed the emission standards that apply for the certified vehicle. The demonstration applies for both criteria and GHG emissions. We are proposing to revise 40 CFR 85.525 by removing the requirement to demonstrate compliance with GHG emissions. Program requirements related to criteria exhaust, evaporative, and refueling emissions and onboard diagnostics would remain unchanged.

The regulation at 40 CFR 85.1515 describes the standards that apply for Independent Commercial Importers in their practice of importing used vehicles. We are proposing only to remove text disallowing generation and use of GHG emission credits. We note further that the regulation requires Independent Commercial Importers to meet all the standards that apply under 40 CFR part 86. With the proposed changes described in this action, the removal of GHG standards from 40 CFR part 86, subpart S, would apply equally to imported vehicles. Imported vehicles would continue to be subject to criteria exhaust, evaporative, and refueling emission standards and requirements for onboard diagnostics as specified in 40 CFR part 86, subpart S.

We are proposing to revise the recall-related instructions for remedial plans and consumer notification in 40 CFR 85.1803 and 85.1805 to remove a reference to 40 CFR 86.1865(j)(3), which we are proposing to remove in this action. The referenced paragraph relates to recall provisions for vehicles that do not comply with GHG standards. We are also proposing to revise definitions of ''Emission-related defect'' and ''Voluntary emissions recall'' in 40 CFR 85.1902 where those definitions describe how manufacturers must report GHG-related defects differently than defects related to criteria pollutant emission standards. Finally, we are proposing to amend the warranty provisions for specified major emission control components in 40 CFR 85.2103 by removing the reference to batteries serving as a Renewable Energy Storage System for electric vehicles and plug-in hybrid electric vehicles, along with all components needed to charge the system, store energy, and transmit power to move the vehicle. We would continue to apply the basic emission-related warranty requirement for a period of two years or 24,000 miles where such batteries qualify as an emission-related component.

b. 40 CFR Part 86—Emission Standards and Certification Requirements for Light- and Medium-Duty Vehicles

In general, we propose to amend 40 CFR part 86 to remove all GHG emission standards, references to such standards, and related provisions while retaining provisions that support our criteria pollutant emission program. In this subsection, we describe several proposed amendments that are necessary to remove GHG-related provisions from 40 CFR part 86 while ensuring that criteria pollutant emission standards are not substantively impacted. Table 2 provides a summary of the regulations we propose either to remove or to amend in 40 CFR part 86.

TABLE 2—SUMMARY OF PROPOSED CHANGES TO LIGHT-DUTY AND MEDIUM-DUTY HIGHWAY ENGINE REGULATIONS UNDER 40 CFR PART 86

40 CFR part 86	Sections proposed to remove	Sections proposed to amend
Subpart S—General Compliance Provisions for Control of Air Pollution From New and In-Use Light-Duty Vehicles, Light-Duty Trucks, and Heavy-Duty Vehicles.	86.1815–27, 86.1818–12, 86.1819–14, 86.1865–12, 86.1866–12, 86.1867–12, 86.1870–12.	86.1. 86.1801–12, 86.1803–01, 86.1805–12, 86.1805–17, 86.1807–01, 86.1809–12, 86.1810–09, 86.1810–17, 86.1811–17, 86.1811–27, 86.1816–18, 86.1822–01, 86.1823–08, 86.1827–01, 86.1828–01, 86.1829–15, 86.1830–01, 86.1835–01, 86.1838–01, 86.1839–01, 86.1841–01, 86.1844–01, 86.1845–04, 86.1846–01, 86.1848–10, 86.1854–12, 86.1861–17, 86.1868–12, 86.1869–12.

We are proposing to amend the list of reference documents in 40 CFR 86.1 by removing documents that are referenced only in regulations that we are proposing to remove.

We are proposing to amend the applicability statements in 40 CFR 86.1801–12 by removing references to GHG standards and related compliance provisions. We are also proposing to remove the instruction related to work factor for vehicles above 14,000 pounds gross vehicle weight rating (GVWR) at 40 CFR 86.1801–12(a)(3) since that is meaningful only in the context of GHG standards. We adopted the work-factor provision in a 2016 final rule as a means of limiting the extent to which manufacturers would certify those larger heavy-duty vehicles in test groups along with chassis-certified medium-duty vehicles.[125] Removing the instruction to calculate GHG standards based on a work factor appropriate for medium-duty vehicles, without other compensating changes, could lead to a greater number of heavy-duty vehicles certified as medium-duty vehicles. The work-factor provision was adopted as a means of addressing competing concerns from different manufacturers. As a result, we are proposing to limit the use of this provision to heavy-duty vehicles with a maximum value of 19,500 pounds GVWR. We believe this limitation is the best way to maintain a consistent approach for certifying affected vehicles.

We are proposing to amend the definitions in 40 CFR 86.1803–01 by removing several defined terms that are used only in regulatory provisions that we are proposing to remove. This includes proposing to remove the definition of ''configuration''; while this definition is no longer needed, we are proposing to retain the slightly different definition of ''vehicle configuration,'' since that definition is needed to support standards related to criteria pollutants. We are accordingly proposing to amend several references across 40 CFR part 86, subpart S, to change from a generic reference to ''configuration'' and replace it with the specific reference to ''vehicle configuration.'' We are also proposing to amend 40 CFR 86.1803–01 by adding a definition for ''work factor'' that is consistent with the definition that is embedded in 40 CFR 86.1819–14. We adopted the definition of ''work factor'' in 40 CFR 86.1819–14 primarily as a means of accounting for specific vehicle characteristics in establishing GHG emission standards for medium-duty vehicles. We are proposing to remove all of 40 CFR 86.1819–14 as described below. However, we are keeping the definition of work factor to support the definition of ''medium-duty passenger vehicle,'' which relies on the work factor concept to categorize vehicles for applying criteria pollutant emission standards.

We are proposing to amend 40 CFR 86.1803–01 and 86.1809–12 by removing references to the air conditioning efficiency test as part of the consideration for determining what is a defeat device. We are proposing to eliminate the air conditioning efficiency test from the EPA certification program because it was only used to generate GHG credits. Note that we are not proposing in this NPRM to remove the air conditioning efficiency credit provisions and measurement procedures from 40 CFR 86.1868–12 and 1066.845, which are used by manufacturers for compliance with fuel economy standards as described in 40 CFR 600.510(c)(3).

We are proposing to amend useful life specifications in 40 CFR 86.1805–12 and 86.1805–17 by removing references to useful life for GHG standards. Useful life for all criteria exhaust, evaporative, and refueling emission standards and onboard diagnostics would remain unchanged.

We are proposing to amend labeling requirements in 40 CFR 86.1807–01 by removing the requirement for battery electric vehicles and plug-in hybrid electric vehicles to identify monitor family and battery durability family on the vehicle emission control information label. We are proposing to remove the battery monitoring and battery durability requirements in 40 CFR 86.1815–27 and therefore no longer to include this family information as part of the certification process.

We are proposing to amend 40 CFR 86.1810–09(f)(2) by removing references to GHG emission standards. Manufacturers must continue to comply with altitude-related demonstration requirements for vehicles subject to the cold temperature standards for nonmethane hydrocarbon emissions.

We are proposing to amend 40 CFR 86.1810–17(j) by removing references to GHG emission standards. Small-volume manufacturers that modify a vehicle already certified by a different company must continue to meet other requirements as specified, such as those related to criteria exhaust, evaporative, and refueling emissions and onboard diagnostics.

We are proposing to amend 40 CFR 86.1811–17, 86.1811–27, and 86.1816–18 by removing references to GHG emission standards. We are not otherwise proposing to change these sections, which establish criteria exhaust emission standards for light-duty and medium-duty vehicles.

We are proposing to remove 40 CFR 86.1815. We adopted this section to establish battery monitoring and battery durability requirements for battery electric vehicles and plug-in hybrid electric vehicles. Those battery-related requirements were adopted as part of the overall program for controlling GHG emissions. Since the earliest battery monitoring and battery durability requirements were scheduled to start in MY 2027, removing those requirements involves no immediate transition to discontinue compliance for certified vehicles.

We are proposing to remove 40 CFR 86.1818–12 and 86.1819–14. These sections describe the GHG standards and implementing provisions for MY 2010 and later light-duty vehicles and for MY 2014 and later medium-duty vehicles. We propose to discontinue the requirement to demonstrate compliance with these GHG standards and further propose that this discontinuation would apply as of the effective date of the final rule. Manufacturers need not amend existing certificates for ongoing production for the current model year. Manufacturers would in any case not need to submit credit reports at the end of the current model year to demonstrate compliance with the fleet average CO_2 standards.

We are proposing to amend test group specifications in 40 CFR 86.1823–08 by removing durability demonstration requirements related to GHG emission standards.

We are proposing to amend the provisions for establishing test groups in 40 CFR 86.1827–01 by removing the reference to CO_2 emission standards.

We are proposing to amend testing specifications in 40 CFR 86.1829–15 by removing references to GHG emission standards, except where needed to account for emission measurements related to fuel economy labeling. We are also proposing to change the nomenclature for the reference brake-specific CO_2 emission rate needed to perform calculations related to in-use testing for engines certified under 40 CFR 1036.635 for use in vehicles with high towing capacity.

We are proposing to amend the compliance provisions 40 CFR 86.1835–01, 86.1838–01, 86.1841–01, 86.1848–10, and 86.1854–12 by removing references to GHG emission standards.

We are proposing to amend carryover testing provisions in 40 CFR 86.1839–01 by removing references to accuracy requirements for battery monitoring for

[125] 81 FR 73478 (Oct. 25, 2016).

electric vehicles and plug-in hybrid electric vehicles.

We are proposing to amend instructions for the application for certification in 40 CFR 86.1844–01 by removing references to refrigerant leakage rates and GHG emission standards.

We are proposing to amend in-use testing requirements in 40 CFR 86.1845–04 and 86.1846–01 by removing references to testing GHG emissions and testing related to battery monitor accuracy and battery durability for electric vehicles and plug-in hybrid electric vehicles. We are also proposing to amend 40 CFR 86.1845–04 by changing the nomenclature for the reference brake-specific CO_2 emission rate needed to perform calculations related to in-use testing for engines certified under 40 CFR 1036.635 for use in vehicles with high towing capacity.

We are proposing to amend the credit provisions for criteria exhaust and evaporative emissions in 40 CFR 86.1861–17 by referencing the credit provisions in 40 CFR part 1036, subpart H, instead of 40 CFR part 1037, subpart H. We are proposing to remove the credit provisions in 40 CFR part 1037, subpart H, in this rule because they are needed only in relation to the GHG standards in 40 CFR part 1037, which we are proposing to remove in this rule. The referenced credit provisions in 40 CFR part 1037, subpart H, are equivalent to the analogous credit provisions in 40 CFR part 1036, subpart H. We are also proposing to amend 40 CFR 86.1861–17 by removing a reference to 40 CFR 86.1865(j)(3), which we are proposing to remove in this action.

We are proposing to remove 40 CFR 86.1865–12. This section describes the emission credit provisions related to the fleet average GHG standards. See the discussion related to 40 CFR 86.1818–12 and 86.1819–14 for the transition to discontinued GHG standards for the model year currently in production for the year when the final rule is effective. More specifically, we are proposing no longer to recognize manufacturers' positive or negative GHG credit balances as of the effective date of the final rule. Note also that we are proposing to remove 40 CFR 86.1865–12(j)(3), which describes recall provisions for vehicles that do not comply with GHG standards. We recognize that a credit-based approach to recall is no longer appropriate without a GHG credit program. Accordingly, we are proposing to remove the provisions describing a credit-based remedy for noncompliance that does not involve a vehicle defect that can be repaired to bring vehicles into compliance with standards.

We are proposing to remove 40 CFR 86.1866–12, 86.1867–12, and 86.1867–31. These sections describe GHG credit programs for advanced technology and air conditioning leakage that serve only in relation to the GHG standards that we are proposing to remove in this rule.

We are proposing to amend the credit provisions for air conditioning efficiency and for off-cycle technologies in 40 CFR 86.1868–12 and 86.1869–12 by removing references to the fleet average GHG standards and adjusting the description to clarify that these credit provisions continue to serve as inputs for calculating fuel consumption improvement values and average fuel economy for light-duty program vehicles under 40 CFR 600.510. The 2024 final rule included new standards for light-duty program vehicles and several changes related to these credit programs, and we are not reopening those decisions.[126] First, we adopted a change for both air conditioning efficiency credits and off-cycle credits to not allow vehicles without engines to generate those credits starting in model year 2027. Second, we created a schedule to phase down off-cycle credits for vehicles with engines by establishing a declining value of the cap on off-cycle credits through model year 2032, with off-cycle credits fully discontinued for all vehicles starting in model year 2033. Third, we removed the option for manufacturers to generate off-cycle credits according to the provisions of 40 CFR 86.1869–12(c) and (d) starting in model year 2027.

We are proposing to remove 40 CFR 86.1870–12. This section describes a GHG credit program for full-size pickup trucks with hybrid technology. Those GHG credits were also used for calculating fuel consumption improvement values and average fuel economy for light-duty program vehicles under 40 CFR 600.510. However, we amended those credit provisions in the 2021 final rule to establish model year 2024 as the last year that manufacturers could generate those credits.[127] Because those credits are already discontinued for purposes of demonstrating compliance with EPA emission standards, manufacturers can no longer use those provisions to create fuel consumption improvement values under 40 CFR part 600.

c. 40 CFR Part 600—Requirements Related to Fuel Economy for Light- and Medium-Duty Vehicles

In general, we propose to amend 40 CFR part 600 to remove all references to GHG emission standards and related provisions while retaining provisions that support compliance with CAFE standards and fuel economy labeling for passenger cars and light trucks. In the remainder of this subsection, we describe several proposed amendments that are needed to remove GHG-related provisions from 40 CFR part 600 without affecting provisions related to CAFE standards and fuel economy labeling. Table 3 provides a summary of the regulations we propose either to remove or to amend in 40 CFR part 600.

TABLE 3—SUMMARY OF PROPOSED CHANGES TO LIGHT-DUTY AND MEDIUM-DUTY HIGHWAY ENGINE REGULATIONS UNDER 40 CFR PART 600

40 CFR part 600	Sections proposed to remove	Sections proposed to amend
Subpart A—General Provisions		600.001, 600.002, 600.006, 600.007, 600.008, 600.010.
Subpart B—Fuel Economy and Exhaust Emission Test Procedures.		600.101, 600.111–08, 600.113–12, 600.114–12, 600.116–12, 600.117.
Subpart C—Procedures for Calculating Fuel Economy and Carbon-related Exhaust Emission Values.		600.206–12, 600.207–12, 600.210–12.
Subpart F—Procedures for Determining Manufacturer's Average Fuel Economy.	600.514–12	600.507–12, 600.509–12, 600.510–12, 600.512–12.

[126] 89 FR 27842 (Apr. 18, 2024).

[127] 86 FR 74434 (Dec. 30, 2021).

We are proposing to amend the applicability statements in 40 CFR 600.001 by removing references to carbon-related exhaust emissions and fleet average CO_2 standards. We are also proposing to remove the reference in 40 CFR 600.001(a) to medium-duty vehicles because we are proposing to revise 40 CFR part 600 such that those vehicles would no longer be subject to regulation under 40 CFR part 600. In contrast, the testing provisions would remain to describe how passenger automobiles and light trucks (including medium-duty passenger vehicles) must meet fuel economy standards and how manufacturers must prepare fuel economy labels.

We are proposing to amend the definitions in 40 CFR 600.002 by removing the reference to fleet average CO_2 standards. We are also proposing to remove the portions of several definitions that relate to medium-duty vehicles (also described as heavy-duty vehicles in the regulation).

We are proposing to amend the definition of Medium-Duty Passenger Vehicle ($MDPV_{FE}$) for purposes of fuel economy testing and reporting in 40 CFR 600.002 to align with the clarified definition published by NHTSA at 49 CFR 523.2 (89 FR 52945, June 24, 2024). Aligning these definitions is necessary to ensure EPA's test procedures are properly applied to vehicles covered by fuel economy standards and labeling requirements.

As described for 40 CFR 86.1803–01, we are proposing to amend several references across 40 CFR part 600 to change from a generic reference to ''configuration'' and replace it with the specific reference to ''vehicle configuration.''

We are proposing to amend the information requirements in 40 CFR 600.006 through 600.010 by removing references to carbon-related exhaust emissions, GHG emission standards, and reporting GHG-related information generally.

We are proposing to amend the testing overview in 40 CFR 600.101 and 600.111–08 by removing references to carbon-related exhaust emissions and fleet average CO_2 emissions.

We are proposing to amend the emission calculations in 40 CFR 600.113–12 by removing references to carbon-related exhaust emissions and other GHG emissions.

We are proposing to amend the interim testing provisions in 40 CFR 600.117 by removing paragraph (a)(5) since we are proposing to discontinue GHG testing with in-use vehicles under 40 CFR 86.1845–04. We are also proposing to revise paragraphs (a)(6) and (b) to clarify that manufacturers do not adjust measured fuel economy values to account for fuel effects, whether they test with E0 or E10 gasoline.

We are proposing to amend the testing, calculation, and reporting specifications in 40 CFR 600.116–12, 600.507–12, 600.509–12, and 600.510–12 by removing references to carbon-related exhaust emissions. We note that calculations related to off-cycle credits in 40 CFR 600.510(c)(3)(ii) continue to rely on carbon-related exhaust emissions as specified in 40 CFR 86.1869–12.

We are proposing to amend the reporting requirements in 40 CFR 600.512–12 by removing references to carbon-related exhaust emissions. This includes amending 40 CFR 600.512–12(c)(5)(i) to explain that the purpose for performing the calculations in 40 CFR 600.510–12(c)(3) is to support credit calculations for fuel economy improvement factors, rather than demonstrating compliance with the fleet average standard for carbon-related exhaust emissions. We are proposing to move the existing reporting requirement for emission credits related to fuel consumption improvement values from 40 CFR 86.1865–12(l)(2)(iii), which we are proposing to remove, to 40 CFR 600.512–12(c)(3) to preserve the existing provisions needed for fuel economy reporting. We are also proposing to remove the reporting requirements in 40 CFR 600.514–12, which are solely related to GHG emissions.

C. Heavy-Duty Engine and Vehicle GHG Program

This subpart includes background on EPA's heavy-duty GHG emission program and describes our proposed changes to the engine-based GHG regulations and our proposed changes to the vehicle-based GHG regulations.

1. Background on the Heavy-Duty Engine and Vehicle GHG Program

The EPA promulgated new GHG emission standards for heavy-duty engines and vehicles in three separate rulemakings. In 2011, the EPA established the first GHG standards for model year 2014 and later heavy-duty engines and vehicles in an action titled ''Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles'' (HD GHG Phase 1).[128] In 2016, the EPA set new GHG standards for model year 2021 and later heavy-duty engines and vehicles in an action titled ''Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2'' (HD GHG Phase 2).[129] Most recently, in 2024, the EPA finalized an action titled ''Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles—Phase 3'' (HD GHG Phase 3), which set new CO_2 emission standards for model year 2032 and later heavy-duty vehicles that phase in starting as early MY 2027 for certain vehicle categories.[130] The phase-in revises MY 2027 GHG standards that were established previously under the EPA's HD GHG Phase 2 rulemaking.[131]

The EPA and NHTSA jointly issued the HD GHG Phase 1 and HD GHG Phase 2 rulemakings covering heavy-duty GHG emission and fuel efficiency standards. The EPA set GHG emission standards under CAA section 202(a), and NHTSA set fuel consumption standards under EISA.[132] The EPA and NHTSA programs are harmonized through MY 2026; however, NHTSA has not adopted changes in fuel consumption standards corresponding to the EPA's HD GHG Phase 3 standards. As a result, the CO_2 emission and fuel consumption standards currently diverge in MY 2027 and later.

The EPA's regulations include the test procedures along with a certification and compliance program, which is led by the EPA. As noted previously, this regulatory structure was designed to maximize efficiency within the Federal government and minimize the burden on the engine and vehicle manufacturers by centralizing data submission. Manufacturers submit data and information to the EPA and the EPA, in turn, shares information with NHTSA as needed to support NHTSA's implementation of its fuel consumption standards.[133]

2. Proposed Changes to the Heavy-Duty Engine and Vehicle GHG Regulations

The EPA's heavy-duty engine and vehicle emission regulations are contained in two standard-setting parts. 40 CFR part 1036 includes the engine-based emissions regulations for both criteria pollutant and GHG emissions.[134] 40 CFR part 1037 includes the vehicle-based emission regulations for criteria pollutant exhaust emissions,

[128] 76 FR 57106 (Sept. 15, 2011).

[129] 81 FR 73478 (Oct. 25, 2016).

[130] *See* 89 FR 29559–29561 (Apr. 22, 2024).

[131] 89 FR 29440 (Apr. 22, 2024).

[132] 49 U.S.C. 32902(k).

[133] *See* 49 CFR 535.8, 1036.755, 1037.755.

[134] Note that heavy-duty engine manufacturers are subject to criteria pollutant standards in 40 CFR part 86, subpart A, through 2026. In a recent rulemaking (88 FR 4296, Jan. 24, 2023), the EPA migrated criteria pollutant regulations from 40 CFR part 86, subpart A, to 40 CFR part 1036 with new requirements that apply to 2027 and later heavy-duty engines. *See* 88 FR 4326.

evaporative and refueling emissions, and GHG emissions.

In the following subsections, we describe our proposed removal and amendment of specific portions of each of these regulatory parts. In general, the approach taken in this proposal is to remove the MY 2014 and later heavy-duty GHG emission standards promulgated in HD GHG Phase 1, Phase 2, and Phase 3, collectively, along with the testing and reporting requirements associated with the GHG emission standards. We request comment on the proposed regulatory changes and whether additional changes are necessary to remove GHG regulations.

a. 40 CFR Part 1036—Emission Standards and Compliance Provisions for Heavy-Duty Engines

40 CFR part 1036 contains regulations related to the final rule titled ''Control of Emissions from New and In-Use Heavy-Duty Highway Engines,'' including emission standards and compliance provisions for criteria pollutant emissions, evaporative and refueling emissions, and GHG exhaust emissions (*i.e.,* CO_2, N_2O, and methane). 40 CFR part 1036 is divided into nine subparts with three appendices. Subpart A defines the applicability of part 1036 and gives an overview of regulatory requirements. Subpart B describes the emission standards and other requirements that must be met to certify engines under this part. Subpart C describes how to apply for a certificate of conformity for heavy-duty engines. Subpart D addresses testing of production engines and hybrid powertrains. Subpart E addresses in-use testing, while Subpart F describes how to test engines to demonstrate compliance with the criteria pollutant and GHG emission standards. Subpart G describes requirements, prohibitions, and other provisions that apply to engine manufacturers, vehicle manufacturers, owners, operators, rebuilders, and all others. Subpart H describes how manufacturers can optionally generate, bank, trade, and use emission credits to certify heavy-duty engines. Subpart I includes definitions and other reference material. Appendix A includes a summary of previous emissions standards. Appendix B includes the transient duty cycles. Appendix C includes engine fuel maps used in the certification of specific vehicles to meet the heavy-duty vehicle CO_2 emission standards.

This subsection includes an overview of the regulations related to the heavy-duty engine program we propose to remove or revise. In general, we propose to amend 40 CFR part 1036 to remove all GHG emission standards, references to such standards, and related provisions; however, most of 40 CFR part 1036 is retained for EPA's heavy-duty engine criteria pollutant emission program. In this subsection, we describe the proposed amendments to remove GHG-related provisions from 40 CFR part 1036, which include some amendments needed to retain, without reopening, the efficacy of the criteria pollutant emission standards. Table 4 provides a summary of the regulations we propose either to remove or to amend in 40 CFR part 1036.

TABLE 4—SUMMARY OF PROPOSED CHANGES TO HEAVY-DUTY HIGHWAY ENGINE REGULATIONS UNDER 40 CFR PART 1036

40 CFR part 1036	Sections proposed to remove	Sections proposed to amend
Subpart A—Overview and Applicability		1036.1, 1036.5, 1036.15.
Subpart B—Emission Standards and Related Requirements.	1036.108	1036.101, 1036.115, 1036.130, 1036.135, 1036.150.
Subpart C—Certifying Engine Families	1036.241	1036.205, 1036.225, 1036.230, 1036.231,[a] 1036.235, 1036.245.
Subpart D—Testing Production Engines and Hybrid Powertrains.		1036.301.
Subpart E—In-Use Testing		1036.415.
Subpart F—Test Procedures	1036.505, 1036.535, 1036.540, 1036.543, 1036.550.	1036.501, 1036.510, 1036.512, 1036.514, 1036.520, 1036.530, 1036.545, 1036.580.
Subpart G—Special Compliance Provisions	1036.610, 1036.615, 1036.620, 1036.625, 1036.630, 1036.635.	1036.605.[b]
Subpart H—Averaging, Banking, and Trading for Certification.	1036.745, 1036.755	1036.701, 1036.705, 1036.710, 1036.720, 1036.725, 1036.730, 1036.740, 1036.750.
Subpart I—Definitions and Other Reference Information.		1036.801, 1036.805, 1036.810, 1036.815.
Appendices	Appendix C.	

[a] We are proposing to move 40 CFR 1037.231 to a new 40 CFR 1036.231.
[b] We are proposing similar revisions in 40 CFR 86.007–11(g) and 86.008–10(g) for model year 2026 and earlier engines for specialty vehicles.

Within 40 CFR part 1036, subpart B, we propose to remove 40 CFR 1036.108, which includes the GHG emission standards for CO_2, N_2O, and methane. We also propose to remove several paragraphs from 40 CFR 1036.150 that describe interim provisions related to the heavy-duty engine or vehicle GHG programs. We propose to remove and reserve 40 CFR 1036.150(b), (d), (e), (g)–(j), (l)–(n), (p)–(s), and (w) and otherwise to retain the existing section numbering. We propose to remove 40 CFR 1036.150(aa) at the end of the section.

In 40 CFR part 1036, subpart C, we propose to remove 40 CFR 1036.230(f) and (g), which describe how manufacturers divide their product lines into engine families for certifying to the GHG emission standards. We propose several revisions in 40 CFR 1036.235 to remove GHG emission testing requirements. In 40 CFR 1036.235(a), we propose to migrate text from 40 CFR 1037.235(a) that provides direction on how manufacturers select the test powertrain to replace GHG-related testing requirements in 40 CFR 1036.235(a)(2). We propose to remove in its entirety 40 CFR 1036.241, which describes how to demonstrate compliance with the heavy-duty engine GHG emission standards. In 40 CFR 1036.245, existing provisions allow manufacturers to use vehicle-based duty cycles for engine service accumulation in the laboratory to determine deterioration factors. As described in section VI.C.2.b of this preamble, we are proposing to remove the referenced vehicle-based duty cycles from 40 CFR part 1037, so we are proposing to revise 40 CFR 1036.245(c)(3)(ii) to allow manufacturers to request approval of a

different test sequence, without requiring specific duty cycles.

Also in 40 CFR part 1036, subpart C, we propose to migrate the provisions that relate to powertrain families from the vehicle standard-setting part in 40 CFR 1037.231 to the engine standard-setting part as a new 40 CFR 1036.231 with proposed revisions described in this section. In a previous rule (89 FR 29616), we migrated the powertrain test procedure from the heavy-duty vehicle procedures (formerly 40 CFR 1037.550) to the heavy-duty engine procedures in 40 CFR 1036.545 because we expected powertrain testing to be primarily used by engine manufacturers in certifying engines to criteria pollutant standards or in place of engine-based procedures for GHG standards. Similarly, we are proposing to migrate the related provisions manufacturers would use to divide their product line into powertrain families. In general, we propose to migrate the text from the vehicle program in 40 CFR 1037.231 to a newly created section in the engine program under 40 CFR 1036.231. We propose to modify the text previously under 40 CFR 1037.231(b)(1), such that the new 40 CFR 1036.231(b)(1) would no longer require powertrains to share the same engine families described in 40 CFR 1036.230 but would require the engine share the same design aspects specified in 40 CFR 1036.230. Since a manufacturer may choose to certify the whole powertrain to the standards in 40 CFR part 1036, there would only be a powertrain family, not a certified engine family that contains just the engine. Similarly, and consistent with our approach for defining engine families in 40 CFR 1036.230, we see no need to limit the powertrain family based on the vehicle service class the powertrain goes into and propose not to migrate the existing 40 CFR 1037.231(b)(2) that requires powertrain families to share vehicle service class groupings. We are also proposing not to migrate ''energy capacity'' as an example attribute in the proposed new 40 CFR 1036.231(b)(10), since it is not needed for the criteria pollutant standards. Similarly, we are proposing not to migrate existing 40 CFR 1037.231(b)(11) since rated output of hybrid mechanical power technology is also not needed for a criteria pollutant family definition.

In 40 CFR part 1036, subpart D, we propose to revise 40 CFR 1036.301 to remove paragraphs (a) through (d) describing how the EPA would conduct selective enforcement audits related to heavy-duty CO_2 engine emissions. We propose to revise the existing statement that selective enforcement audits apply for engines as specified in 40 CFR part 1068, subpart E, by adding that they apply for powertrains, consistent with 40 CFR 1036.301(c) which we are proposing to remove.

As previously noted, we are retaining and not reopening the in-use testing procedures in 40 CFR part 1036, subpart E, which apply for the criteria pollutant emission standards. More specifically, within the in-use test procedures, we are retaining references to measuring CO_2 for use in required chemical balance test procedures and to calculate the criteria pollutant emissions values for in-use testing. Also, in 40 CFR 1036.415(g), we continue to require that manufacturers override any adjustable idle-reduction features on vehicles used for in-use testing; however, we propose to revise the text to include a more general statement describing what it means to be adjustable.

In 40 CFR part 1036, subpart F, we propose to remove test procedures related to developing engine data to support heavy-duty vehicle GHG emissions certification, which include 40 CFR 1036.505, 1036.535, 1036.540, 1036.543, and 1036.550. Relatedly, we propose to remove the fuel map duty cycle in Appendix C to part 1036. In 40 CFR 1036.510, we propose several revisions to paragraph (b), including replacing a reference to 40 CFR 1036.540(c)(2) with a new table that provides the gear ratios based on engine service class from 40 CFR 1036.540. We also propose to remove and reserve 40 CFR 1036.510(e) and 1036.512(e), which describe how to determine GHG emissions for plug-in hybrid powertrains using the heavy-duty engine Federal Test Procedure (FTP) and engine Supplemental Emissions Test (SET) and duty cycles, respectively. In 40 CFR 1036.530(e), we are retaining and not reopening the requirement that manufacturers measure CO_2 emissions for in-use testing, but we propose to revise the related variable $e_{CO2FTPFCL}$ to remove reference to ''family certification limit (FCL)'' that would no longer apply. The proposed new variable, e_{CO2FTP}, would represent the engine's brake-specific CO_2 over the FTP or SET duty cycle. Relatedly, we are proposing to replace references to $e_{CO2FTPFCL}$ with e_{CO2FTP} throughout 40 CFR parts 1036 and 1037.

Powertrain testing, also described in 40 CFR part 1036, subpart F, is an option that manufacturers may use for certifying hybrid powertrains to the engine criteria pollutant standards in 40 CFR 1036.104 and the GHG emission standards in 40 CFR 1036.108. The powertrain test procedure in 40 CFR 1036.545 describes testing a powertrain that includes an engine coupled with a transmission, drive axle, and hybrid components, or a subset of these components. We are retaining without reopening most of 40 CFR 1036.545 related to the powertrain testing for criteria pollutants, but we propose to remove the portions related to the GHG program and revise several paragraphs to account for the removed GHG content. Throughout 40 CFR 1036.545, we propose to remove existing requirements to create inputs for EPA's Greenhouse gas Emission Model (GEM) tool that manufacturers use for compliance with the CO_2 standards. We also propose to remove references to the use of utility factors, vehicle configurations, and vehicle-based duty cycles and test procedures. In 40 CFR 1036.545(b), (d), and (j) we propose to replace 40 CFR part 1037 references with relevant text from the procedures. We also propose to remove paragraph (p) which describes the procedure to determine usable battery energy for plug-in hybrid powertrains.

As noted in 40 CFR 1036.545(a), powertrain testing depends on vehicle and component models to test the powertrain using the engine-based duty cycles and the existing 40 CFR 1036.545(a), (f), and (g), and allow manufacturers to use the hardware-in-the-loop (HIL) model included in GEM. As described in section VI.C.2.b of this preamble, we propose to remove GHG vehicle testing requirements for most vehicles, including any requirements to use GEM to demonstrate compliance. However, we propose to retain the use of the HIL model within GEM Phase 2, Version 4.0 for the powertrain test procedure.[135]

In 40 CFR part 1036, subpart G, we propose revisions to 40 CFR 1037.605 to remove the GHG requirements for engines installed in specialty vehicles and are proposing to make similar changes in 40 CFR 86.007–11(g) and 86.008–10(g) for model year 2026 and earlier specialty vehicle engines. We propose to remove 40 CFR 1036.610 through 1036.630, which include compliance provisions related to heavy-duty engine GHG emissions compliance. We propose also to remove 40 CFR 1036.635, which describes how manufacturers that certify engines for use in high-gross combined vehicle weight (GCWR) medium-duty vehicles under 40 CFR part 1036 could comply with GHG standards under 40 CFR part 86, subpart S. With no need to describe the GHG-related flexibilities in 40 CFR 1036.635, the existing applicability

[135] GEM Phase 2, Version 4.0 is incorporated by reference in 40 CFR 1036.545. *See also* 40 CFR 1036.810.

provisions in 40 CFR 1036.1 and 1036.5 already cover the certification provisions for high-GCWR vehicles as they relate to criteria pollutants. Specifically, 40 CFR 1036.1 sets up the default of applying the standards and certification requirements from 40 CFR part 1036 to all engines installed in heavy-duty vehicles (generally vehicles above 8,500 pounds GVWR), while 40 CFR 1036.5 allows manufacturers to certify medium-duty vehicles to the chassis-based program as described in 40 CFR 86.1801–12. We are proposing to make minor changes to 40 CFR 1036.5(a) to differentiate more clearly the certification requirements for medium-duty vehicles from those for heavy-duty engines.

In 40 CFR part 1036, subpart H, we propose to remove 40 CFR 1036.745, which describes CO_2 emission credit deficits.

In 40 CFR part 1036, subpart I, we propose to remove GHG-specific symbols, abbreviations, and acronyms from 40 CFR 1036.805, and propose to remove materials from 40 CFR 1036.810 that are only incorporated by reference in the test procedures we propose to remove. In 40 CFR 1036.801, we propose to remove several GHG-specific definitions, and are moving transmission- and other powertrain-related definitions from the heavy-duty vehicle definitions in 40 CFR 1037.801 to the engine definitions in 40 CFR 1036.801, so they can be available to engine manufacturers using the powertrain test procedures in 40 CFR 1036.545.

b. 40 CFR Part 1037—Emission Standards and Compliance Provisions for Heavy-Duty Vehicles

40 CFR part 1037 contains regulations related to the final rule titled ''Control of Emissions from New Heavy-Duty Motor Vehicles,'' including GHG emission standards for CO_2 and HFC, criteria pollutant emission standards that apply for all heavy-duty vehicles, and evaporative and refueling emission standards that apply for certain heavy-duty vehicles. 40 CFR part 1037 is divided into nine subparts with five appendices. Subpart A defines the applicability of part 1037 and gives an overview of regulatory requirements. Subpart B describes the emission standards and other requirements that must be met to certify vehicles under this part. Subpart C describes how to apply for a certificate of conformity. Subpart D and E address testing of production and in-use vehicles, respectively. Subpart F describes how to test vehicles and perform emission modeling for vehicles subject to the CO_2 emission standards. Subpart G, along with 40 CFR part 1068, describe requirements, prohibitions, and other provisions that apply to manufacturers, owners, operators, rebuilders, and all others. Subpart H describes how manufacturers can optionally generate and use emission credits to certify vehicles. Subpart I includes definitions and other reference material. Finally, Appendix A, B, and D include test cycles, Appendix C presents emission control identifiers for emissions labels, and Appendix E presents power take-off utility factors.

This subsection includes an overview of the regulations related to the heavy-duty vehicle program we propose to remove or revise. In general, we propose to amend 40 CFR part 1037 to remove all GHG emission standards, references to such standards, and related provisions without revising or reopening provisions necessary to support criteria pollutant standards, including evaporative and refueling emissions standards. Below we describe the proposed amendments to remove GHG-related provisions from 40 CFR part 1037, which include some amendments needed to retain the efficacy of the criteria pollutant emission standards. Table 5 provides a summary of the regulations we propose either to remove or to amend in 40 CFR part 1037.

TABLE 5—SUMMARY OF PROPOSED CHANGES TO HEAVY-DUTY HIGHWAY VEHICLE REGULATIONS UNDER 40 CFR PART 1037

40 CFR part 1037	Sections proposed to remove	Sections proposed to amend
Subpart A—Overview and Applicability		1037.5, 1037.10, 1037.15.
Subpart B—Emission Standards and Related Requirements.	1037.105, 1037.106, 1037.140, 1037.150	1037.101, 1037.102, 1037.115, 1037.120, 1037.125, 1037.135.
Subpart C—Certifying Vehicle Families	1037.231,[a] 1037.232	1037.201, 1037.205, 1037.225, 1037.230, 1037.235, 1037.250.
Subpart D—Testing Production Vehicles and Engines.	1037.301, 1037.305, 1037.315, 1037.320.	
Subpart E—In-Use Testing	1037.401.	
Subpart F—Test and Modeling Procedures	1037.501, 1037.510, 1037.520, 1037.525, 1037.527, 1037.528, 1037.530, 1037.532, 1037.534, 1037.540, 1037.551, 1037.555, 1037.560, 1037.565, 1037.570.	
Subpart G—Special Compliance Provisions	1037.610, 1037.615, 1037.630, 1037.631, 1037.640, 1037.645, 1037.655, 1037.660, 1037.665, 1037.670.	1037.601, 1037.605, 1037.620, 1037.621, 1037.622, 1037.635.
Subpart H—Averaging, Banking, and Trading for Certification.	1037.701, 1037.705, 1037.710, 1037.715, 1037.720, 1037.725, 1037.730, 1037.735, 1037.740, 1037.745, 1037.750, 1037.755.	
Subpart I—Definitions and Other Reference Information.	1037.810	1037.801, 1037.825.
Appendices	Appendices A, B, C, D, E.	

[a] We are proposing to move 40 CFR 1037.231 to a new 40 CFR 1036.231.

In 40 CFR part 1037, subpart A, we are retaining and not proposing to reopen the existing applicability of 40 CFR part 1037. Specifically, as described in existing 40 CFR 1037.1, the part would continue to apply for battery electric vehicles, fuel cell electric vehicles, and vehicles fueled by conventional and alternative fuels.

Existing 40 CFR part 1037, subpart B, includes criteria pollutant exhaust emission standards, evaporative and refueling emission standards, and GHG emission standards that apply at the

vehicle level. In 40 CFR part 1037, subpart B, we propose to remove the MY 2014 and later heavy-duty vehicle CO_2 emission standards promulgated in HD GHG Phase 1, Phase 2, and Phase 3. This includes the vocational vehicle standards in 40 CFR 1037.105 and the tractor standards in 40 CFR 1037.106. We also propose to amend 40 CFR 1037.115 to remove the HFC emission standards. We propose to amend 40 CFR 1037.120 to remove the emission control components related to heavy-duty vehicle GHG-reducing technologies. We are retaining and not proposing to reopen the requirement that the basic emission-related warranty applies for fuel cell stacks and rechargeable energy storage systems (RESS) as they continue to qualify as an emission-related component related to criteria pollutant emission standards. Similarly, we are retaining and not proposing to reopen the emission control components covering a vehicle's evaporative and refueling emissions. Also in Subpart B, we propose to remove 40 CFR 1037.140 and 1037.150, which include the vehicle classifications and interim provisions related directly to the heavy-duty vehicle GHG emission standards.

While we propose to remove GHG standards and related requirements, we would retain without reopening criteria pollutant exhaust emission standards in 40 CFR 1037.102 and the evaporative and refueling emission standards in 40 CFR 1037.103. We propose to revise 40 CFR 1037.102(a) to describe how vehicles can be deemed to meet the criteria pollutant exhaust emission standards without testing under 40 CFR part 1037. As proposed, vehicle manufacturers would continue to submit an application for certification meeting the applicable requirements in 40 CFR 1037.205, affix an appropriate label to their vehicles as specified in 40 CFR 1037.135, and meet the applicable reporting and recordkeeping requirements in 40 CFR 1037.250. Under this proposed approach, most heavy-duty vehicles would be deemed to meet the criteria pollutant exhaust emissions standards if manufacturers state in their applications for certification that the installed engines are certified to the standards of 40 CFR part 86 or 1036, as applicable. We similarly propose specialty vehicles meeting the requirements in 40 CFR 1037.605 and heavy-duty glider vehicles meeting the requirements 40 CFR 1037.635 would also be deemed to meet the criteria pollutant exhaust emission standards.[136] Existing 40 CFR part 1037 includes other requirements that would continue to apply for certain vehicles, and we propose to revise 40 CFR 1037.102(a) to also refer to the requirements we are retaining and not reopening for auxiliary power units (APUs) installed on new tractors, now specified in proposed new 40 CFR 1037.102(c), and for the vehicles subject to the existing evaporative and refueling emission standards that apply as specified in 40 CFR 1037.103.

In the HD GHG Phase 2 rulemaking, we adopted PM emission standards that apply for APUs installed on new tractors.[137] The APU requirements are currently specified in 40 CFR 1037.106 with the other tractor standards, including the GHG emission standards we are proposing to remove. Since PM emissions are criteria pollutant emissions, we are retaining and not reopening the PM emission standards for APUs, and we propose to migrate 40 CFR 1037.106(g) to a new 40 CFR 1037.102(c). We note that the APUs under this specific proposed revision are certified under the nonroad compression-ignition engine regulations in 40 CFR part 1039, and existing 40 CFR 1039.699 includes references to the APU standards in 40 CFR part 1037. We propose to modify 40 CFR 1039.699(a) and (n) to refer to the proposed new 40 CFR 1037.102 instead of 40 CFR 1037.106, which we propose to remove.

In 40 CFR part 1037, subpart C, we propose to remove 40 CFR 1037.231, 1037.232, and 1037.241 that only apply for certifying heavy-duty vehicles to the GHG emission standards. We are retaining 40 CFR 1037.235, which remains applicable for evaporative and refueling testing that we are not reopening, with proposed revisions to remove GHG-related testing requirements. Existing 40 CFR 1037.230 directs manufacturers to divide their product lines into vehicle families based on regulatory subcategories; however, with the proposed removal of GHG standards, we also propose to remove the range of GHG-based vehicle regulatory subcategories. Therefore, for the purpose of defining vehicle families, we propose to amend 40 CFR 1037.230 to reflect the vehicle types outlined in the proposed 40 CFR 1037.102. Specifically, we propose that manufacturers would create a single vehicle family for all vehicles with propulsion engines that are certified to the criteria pollutant standards of 40 CFR 86.007–11 or 86.008–10, or 40 CFR part 1036, except that new tractors with auxiliary power units would be in a separate family, and vehicles subject to evaporative or refueling standards would be in families as described in existing 40 CFR 86.1812. We propose all specialty vehicles would be a single vehicle family, and all glider vehicles would be in a single vehicle family. Finally, we propose that all vehicles with no propulsion engine, such as battery electric vehicles and fuel cell electric vehicles, would be in a single vehicle family.

With the updated vehicle families, we propose to revise 40 CFR 1037.205, which defines what manufacturers would include in their application for certification. The proposed 40 CFR 1037.205 includes existing information required for all applications for certification, and more clearly defines what specific information would be required for each of the vehicle families proposed in 40 CFR 1037.230.

We propose to remove 40 CFR part 1037, subpart D, in its entirety because it describes the testing of production vehicles to be certified to the heavy-duty CO_2 emission standards. The provisions in 40 CFR 1037.301 through 1037.320 include audit procedures for inputs to the Greenhouse gas Emissions Model (GEM), tractor aerodynamic testing, powertrain testing, and axle and transmission testing.

We propose to remove 40 CFR part 1037, subpart E, in its entirety because it includes the requirements for testing of in-use vehicles and applies only to GHG emission standards.

We propose to remove 40 CFR part 1037, subpart F, in its entirety because it includes the testing and modeling provisions necessary to certify heavy-duty vehicles to the CO_2 emission standards. The provisions in 40 CFR 1037.501 through 1037.570 include procedures for vehicle-based duty cycles for measuring GHG emissions, aerodynamic testing, powertrain component testing, testing with hybrid power take-off units, and the use of GEM.

We propose to remove several sections of 40 CFR part 1037, subpart G, relating to special compliance provisions for the heavy-duty vehicle GHG emission standards. Specifically, we propose to remove 40 CFR 1037.610 through 1037.615, 1037.630, 1037.631, and 1037.640 through 1037.670. These sections include provisions related to off-cycle technologies, advanced technologies, special purpose tractors, variable vehicle speed limiters, idle reduction technologies, in-use tractor

[136] See the discussion of 40 CFR part 1037, subpart G, for the revisions we propose related to the specialty vehicle and glider vehicle provisions.

[137] See 81 FR 73576–73580.

testing, and optional tractor CO_2 emission standards.

We propose to remove 40 CFR part 1037, subpart H in its entirety. The provisions of 40 CFR 1037.701 through 1037.750 describe the averaging, banking, and trading of CO_2 emission credits, along with associated recordkeeping and reporting requirements.

We propose several revisions in 40 CFR part 1037, subpart I, to remove GHG-specific definitions from 40 CFR 1037.801, and symbols, abbreviations, and acronyms from 40 CFR 1037.805. We also propose to remove 40 CFR 1037.810, which includes materials incorporated by reference to support testing to demonstrate compliance with the heavy-duty vehicle GHG standards. This includes, but is not limited to, the GEM model and test procedures for measuring the rolling resistance of tires, tire revolutions per mile, and aerodynamics using coastdown, wind tunnel, and computational fluid dynamics.

Lastly, we propose to remove all appendices to 40 CFR part 1037. Appendices A, B, and D include the test cycles related to heavy-duty vehicle GHG standards. Appendix C includes the emission control identifiers for GHG emission labels. Appendix E includes the power take-off unit utility factors applied in GHG-specific test procedures.

c. Relationship Between the EPA's GHG and NHTSA's Fuel Efficiency Medium- and Heavy-Duty Programs

The current certification and compliance process as relevant for NHTSA is as follows, separately for heavy-duty engines and heavy-duty vehicles:

1. Manufacturers submit fuel consumption data to the EPA using the EPA's electronic certification system following EPA test procedures included in 40 CFR parts 1036 and 1037;

2. The EPA issues certificates of conformity to the manufacturers;

3. Before and during the model year, the EPA sends the fuel consumption data and associated information to NHTSA;

4. After the model year, the EPA analyzes end-of-year reports submitted to the EPA by manufacturers for compliance and shares the fuel consumption data with NHTSA; and

5. NHTSA manages its compliance process related to the fuel consumption standards.

NHTSA's medium- and heavy-duty fuel efficiency regulations in 49 CFR part 535 refer to several sections in EPA's 40 CFR parts 1036 and 1037 that we are proposing to modify or remove. The provisions NHTSA's regulations reference from EPA's heavy-duty engine regulations include 40 CFR 1036.1, 1036.108, 1036.150, 1036.205, 1036.225, 1036.230, 1036.235, 1036.250, 1036.255, 1036.301, 1036.501, 1036.505, 1036.510, 1036.512, 1036.525, 1036.535, 1036.540, 1036.545, 1036.620, 1036.725, 1036.730, 1036.740, 1036.745, and some definitions in 1036.801. The provisions NHTSA's regulations reference from EPA's heavy-duty vehicle regulations include 40 CFR 1037.105, 1037.106, 1037.140, 1037.150, 1037.205, 1037.210, 1037.225, 1037.230, 1037.232, 1037.250, 1037.255, 1037.301, 1037.305, 1037.320, 1037 subpart F broadly, 1037.510, 1037.520, 1037.525, 1037.527, 1037.528, 1037.530, 1037.532, 1037.534, 1037.540, 1037.560, 1037.565, 1037.570, 1037.601, 1037.605, 1037.610, 1037.615, 1037.620, 1037.621, 1037.622, 1037.631, 1037.660, 1037.725, 1037.730, 1037.740, 1037.745, 1037.755, and some definitions in 1037.801. We request comment on whether any of these provisions should be retained with a CFR notation throughout 40 CFR parts 1036 and 1037 explaining that these sections only apply to NHTSA's heavy-duty fuel efficiency program.

We propose to remove 40 CFR 1036.755 and 1037.755, which describe the information the EPA would provide to the Department of Transportation related to heavy-duty engine and vehicle fuel consumption. We note that NHTSA's reporting and recordkeeping regulation in 49 CFR 535.8(a)(6) directs manufacturers to submit information to EPA. 49 CFR 535.8(a)(6) also provides direction to manufacturers in instances where the EPA does not have an electronic pathway to receive the information, to send it through an electronic portal identified by NHTSA, through the NHTSA CAFE database, or to send hardcopy documents to the address provided in the regulations.[138] We request comment on the time required to transition from manufacturers supplying data to the EPA to supplying the data directly to NHTSA.

VII. Requests for Comment

The EPA is specifically soliciting comment on key aspects of the proposed rule. To facilitate comment on those portions of the rule, the EPA has indexed each comment solicitation with a unique identifier below (*e.g.,* ''C–1'', ''C–2'') to provide a consistent framework for effective and efficient provision of comments. Accordingly, we ask that commenters include the corresponding identifier when providing comments relevant to that comment solicitation. We ask that commenters include the identifier either in a heading or within the text of each comment, to make clear which comment solicitation is being addressed. We note that we are not limiting comment to these identified areas. Specifically, we are soliciting comment on the following:

1. All aspects of this proposal, including legal and scientific developments that are being subject to public comment for the first time (C–1).

2. The scientific underpinnings of the Endangerment Finding are weaker than previously believed and contradicted by empirical data, peer-reviewed studies, and scientific developments since 2009 (C–2).

3. The EPA is not proposing to reopen or substantively modify at this time any regulations necessary for criteria pollutant and air toxic measurement and standards, CAFE testing, and associated fuel economy labeling requirements. If there are any elements of our regulations, test procedures, or GHG emission models proposed for removal that should remain to support other programs outside of the EPA's GHG standards, we are seeking comment on what those elements are and why their preservation in the CFR is necessary (C–3).

4. We seek comment on the nature and extent of any reliance interests that may have arisen from our assertion of regulatory authority over GHG emissions from new motor vehicles and engines and are committed to assessing any such interests, determining whether they are significant, and weighing such interests against competing rationales, as required by law (C–4).

5. We seek comment on whether regulated parties have any significant reliance interests in our GHG emission standards for new motor vehicles and new motor vehicle engines (C–5).

6. We seek comment on whether any reliance interests in national uniformity and preemption would support adopting certain rationales and not finalizing other rationales (C–6).

7. We seek comment on whether additional stakeholders have reliance interests in GHG emission standards for new motor vehicles and engines (C–7).

8. We seek comment on potential reliance interests in GHG emission standards for global climate change concerns under CAA section 202(a), including on whether such reliance justifies retaining such standards and the extent to which potential dangers are addressed, or could be addressed, under more specific authorities (C–8).

9. We seek comment on reliance interests in the Endangerment Finding

[138] *See* 49 CFR 535.8(a)(6).

and GHG emission standards issued under CAA section 202(a) and reserve the right to direct out of scope comments to the appropriate rulemaking docket for the applicable regulatory action (C–9).

10. We seek comment on the continued preemptive effect of the CAA in the event that the EPA finalizes the proposed rescission or otherwise concludes that it lacks authority to regulate GHG emissions under CAA section 202(a) or any other specific regulatory provision of the CAA (C–10).

11. We seek comment on the proposed interpretation of CAA 202(a) as discussed in section III.A.1 of this preamble, including the rationales presented in that section and any further rationales that commenters believe support, or detract from, this interpretation (C–11).

12. We seek comment on the rationale presented in section V of this preamble, including on the proper interpretation of ''requisite technology,'' the appropriate standard for measuring pollution prevention and control, and the scientific threshold for determining measurable impacts on trends in climate change (C–12).

13. We seek comment on the proposed bases for repeal presented in section V of this preamble, including on the economics of fleet turnover, the relative efficiency and emission reductions achieved by newer vehicles, and the potential costs to air quality of retaining standards that may slow fleet turnover as compared to the potential benefits of retaining GHG emission standards in response to global climate change concerns (C–13).

14. We seek comment on the rationales presented in section V of this preamble, including on whether such public welfare considerations can and should be considered when prescribing and revising emission standards under CAA section 202(a) (C–14).

15. We seek comment on how to give effect to the statutory language discussed in section V of this preamble as incorporated into the reference in CAA section 202(a) to effects on ''public health or welfare'' (C–15).

16. We request comment on all proposed changes described in section VI of this preamble, including on any additional regulatory provisions for engines and vehicles that should be removed as part of repealing the GHG standards or should be retained to effectuate unrelated standards that we are not proposing to repeal or revise (C–16).

17. NHTSA's medium- and heavy-duty fuel efficiency regulations in 49 CFR part 535 refer to several sections in the EPA's 40 CFR parts 1036 and 1037 that we are proposing to modify or remove. We request comment on whether any of these provisions should be retained for the final rule with a CFR notation throughout 40 CFR parts 1036 and 1037 explaining that these sections only apply to NHTSA's heavy-duty fuel efficiency program (C–17).

18. We request comment on the time required to transition from requiring manufacturers to supply relevant data to the EPA to requiring that they supply the data directly to NHTSA (C–18).

19. We request comment on all proposed changes described in preamble section VI, including suggestions to remove additional regulatory provisions for such engines and vehicles for purposes of GHG regulation or to retain provisions we propose to remove. Specifically, we request comment on the proposed regulatory changes for the light- and medium-duty vehicle programs under 40 CFR parts 85, 86, and 600, and whether additional changes should be considered for purposes of GHG regulation (C–19).

20. We request comment on all proposed changes described in preamble section VI, including suggestions to remove additional regulatory provisions for such engines and vehicles for purposes of GHG regulation or to retain provisions we propose to remove. Specifically, we request comment on the proposed regulatory changes for the heavy-duty engine and vehicle programs under 40 CFR parts 1036 and 1037 and whether we should consider additional changes for purposes of GHG regulation (C–20).

21. We request comment on the analysis provided within section VIII related to the benefits and costs of the proposed action and whether benefit cost analysis is an appropriate and lawful basis for repealing the Endangerment Finding and/or resulting vehicle standards (C–21).

22. The information collection activities in this proposed rule have been submitted for approval to OMB under the Paperwork Reduction Act (PRA), as described in section VIII.C of this preamble. Submit your comments on the Agency's description of the information that would no longer be required to be provided, the accuracy of the provided burden savings estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule (C–22).

23. Stakeholders state that NCA5 does not meet the requirements under Executive Order 14303 and deviated from OMB guidelines on quality, objectivity, utility, and integrity of information disseminated by Federal agencies. The Administrator takes these concerns seriously and seeks public comment on the validity of these concerns and how they should be taken into account when determining whether to finalize any of the alternatives proposed in this action (C–23).

24. We further propose that Massachusetts must be read together with the Supreme Court's decisions in *West Virginia* and *UARG,* which applied the major questions doctrine to statutory provisions similar to CAA section 202(a). To that end, we seek comment on whether *Massachusetts* applied the major questions doctrine in the first instance, and, if it did, whether that analysis informs the meaning of CAA section 202(a) on its own terms and in light of *UARG* and *West Virginia* (C–24).

25. We propose that the EPA's course of rulemaking has not been limited to emission standards as anticipated in *Massachusetts.* To that end, we seek comment on whether a new analysis is required because the EPA's rulemakings in response to the Endangerment Finding have included electric vehicle mandates that require shifting the national vehicle fleet from one type of vehicle and vehicle fuel to another (C–25).

26. We propose that even if intervening legal developments have not foreclosed the regulation of GHG emissions from new motor vehicles and engines under CAA section 202(a), they provide a reasonable basis for the Administrator to approach the inquiry with greater caution today than was applied in the Endangerment Finding. We propose that the Administrator's new approach requires rescinding the Endangerment Finding as fundamentally inconsistent with the framework set out in this proposed alternative. We seek comment on this alternative proposal, including on the breadth of the Administrator's discretion to exercise judgment by rejecting the approach taken in the Endangerment Finding and the results of adopting a different approach (C–26).

27. We seek comment on any additional aspects of the Endangerment Finding that may have fallen short of the administrative law requirement that agency action be reasonable and reasonably explained. Conversely, we seek comment on why the approach taken in the Endangerment Finding remains reasonable given the legal and scientific developments discussed in this proposal, and the impact, if any, of the EPA's denial of rulemaking petitions in 2022 and 2010 on this alternative proposal (C–27).

VIII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *http://www.epa.gov/laws-regulations/laws-and-executive-orders.*

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review

This proposed action is an economically significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made have been documented in the docket. The EPA has prepared a draft Regulatory Impact Analysis (RIA) for this proposed action to project impacts as required by E.O. 12866, and it can be found in the docket.[139] The EPA has not relied upon any aspect of the draft RIA as justification for this proposed rulemaking.

The EPA considered relying on our most recent RIAs from 2024 relating to GHG standards for motor vehicles [140] (2024 GHG Vehicle RIAs) for projecting impacts of this action. However, the 2024 GHG Vehicle RIAs significantly relied upon assumptions that we no longer believe are appropriate and that would significantly impact the costs and benefits of this proposed rule. Those assumptions include, but are not limited to:

1. The impact and existence of EV-related tax credits and other subsidies from the 2022 IRA, which have been repealed in part by the 2025 OBBB and were incorporated into the RIA baseline;
2. The impact of Congress' disapproval under the CRA of the EPA's waiver rule for California's Advanced Clean Truck regulation, which was incorporated into the RIA baseline but is no longer in force in California or any other State;
3. Changes in consumers' interest in purchasing EVs;
4. Future gasoline and diesel prices due to changes in Administration policy since 2024;
5. Changes in the power generation sector as a result of recent projections for data center demands and legislative amendments in the 2025 OBBB that impact the economics of EV penetration and use; and
6. Access to capital for all consumers due to differences in prices and the respective cost impacts on vehicles, given that the RIAs from 2024 assumed unlimited access to capital.

Changes in these assumptions impact all aspects of the 2024 RIAs and, thus, the EPA cannot rely upon those assessments to confidently and appropriately quantify or monetize many of the impacts from this proposed action. In the draft RIA for this proposal, the EPA presents estimated results from two analytical methods for projecting impacts on costs and benefits from removing the GHG standards for LD, MD and HD vehicles and HD engines.

The EPA presents five different modeled scenarios using one of the analytical methods in the draft RIA, which are summarized here in Tables 6 and 7. The first scenario contains all the same assumptions and inputs as presented in the 2024 RIAs. The second scenario estimates the impacts of removing the IRA and the California Advanced Clean Truck (ACT) rule, which the EPA included in the baseline for the 2024 RIAs assessments. Recognizing the significant uncertainties related to future gasoline and diesel prices, the third scenario considers lower fuel prices, in addition to the removal of IRA and the ACT rule. All other assumptions and inputs are the same as those used in the 2024 RIAs. The fourth and fifth scenarios build on the second and third scenarios respectively, accounting for only the first two and half years of fuel savings in estimating the net monetized impact of this proposed rule.

Table 6 and Table 7 show the net present value of the monetized savings, costs, and net savings of the five scenarios presented at 7 and 3 percent discount rates, respectively.

TABLE 6—MONETIZED SAVINGS, COSTS, AND NET SAVINGS AT 7 PERCENT NET PRESENT VALUE

[Billions of 2022 dollars] *

	2024 Light- & medium-duty vehicle multipollutant final rule (LMDV) and greenhouse gas emissions standards for heavy-duty vehicles-phase 3 (HDP3) rule analysis	2024 LMDV and HDP3 rule analysis, no IRA and ACT	2024 LMDV and HDP3 rule, no IRA and ACT; low liquid fuel prices	2024 LMDV and HDP3 rule analysis, no IRA and ACT, 2.5 years of fuel savings	2024 LMDV and HDP3 rule; no IRA and ACT, low liquid fuel prices, 2.5 years of fuel savings
Savings	$570	$640	$640	$640	$640
Costs	590	690	420	320	260
Net Savings	(30)	(50)	220	320	380

* Results may not sum due to rounding.

TABLE 7—MONETIZED SAVINGS, COSTS AND NET SAVINGS AT 3 PERCENT NET PRESENT VALUE

[Billions of 2022 dollars] *

	2024 LMDV and HDP3 rule analysis	2024 LMDV and HDP3 rule analysis, no IRA and ACT	2024 LMDV and HDP3 rule, no IRA and ACT; low liquid fuel prices	2024 LMDV and HDP3 rule analysis; no IRA and ACT, 2.5 years of fuel savings	2024 LMDV and HDP3 rule; no IRA and ACT, low liquid fuel prices, 2.5 years of fuel savings
Savings	$950	$1,030	$1,030	$1,030	$1,030

[139] "Reconsideration of 2009 Endangerment Finding and Greenhouse Gas vehicle Standards: Draft Regulatory Impact Analysis." EPA–420–D–25–002. July 2025.

[140] *See* "Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles. Regulatory Impact Analysis." EPA–420–R–24–004. March 2024; "Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles: Phase 3. Regulatory Impact Analysis". EPA–420–R–24–006. March 2024.

TABLE 7—MONETIZED SAVINGS, COSTS AND NET SAVINGS AT 3 PERCENT NET PRESENT VALUE—Continued

[Billions of 2022 dollars] *

	2024 LMDV and HDP3 rule analysis	2024 LMDV and HDP3 rule analysis, no IRA and ACT	2024 LMDV and HDP3 rule, no IRA and ACT; low liquid fuel prices	2024 LMDV and HDP3 rule analysis; no IRA and ACT, 2.5 years of fuel savings	2024 LMDV and HDP3 rule; no IRA and ACT, low liquid fuel prices, 2.5 years of fuel savings
Costs	1,210	1,390	870	660	550
Net Savings	(260)	(350)	160	380	490

* Results may not sum due to rounding.

The other analytical method which utilizes a revealed preference approach) can be found in the draft RIA.

The EPA requests comment on all aspects of the draft RIA, and on whether there are other approaches the EPA should consider for projecting the impacts of this proposed rule (C–20). We are requesting comment from stakeholders about what expected and modeled impacts would be from this proposal.

B. Executive Order 14192: Unleashing Prosperity Through Deregulation

This action is expected to be an Executive Order 14192 deregulatory action. A summary of the projected costs savings can be found in the draft RIA.

C. Paperwork Reduction Act (PRA)

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in Title 40 of the CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's description of the information that would no longer be required to be provided, the accuracy of the provided burden savings estimates and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. The EPA will respond to any ICR-related comments in the final rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs using the interface at *www.reginfo.gov/public/do/PRAMain.* Find the particular information collection by selecting ''Currently under Review—Open for Public Comments'' or by using the search function. OMB must receive comments no later than September 2, 2025.

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA.

1. Light- and Medium-Duty Vehicle—2024 Final Rule

The ICR document prepared by the EPA for removal of the light- and medium-duty vehicle GHG requirements has been assigned EPA ICR 2750.03, revising EPA ICR 2750.02 (OMB 2060–0764). You can find a copy of the ICR in the docket for this rule and it is briefly summarized here.

The EPA is proposing to remove all regulations that require light- and medium-duty vehicle manufacturers to measure, report, or comply with standards for GHG emissions. Information collected to assure compliance with those requirements is no longer needed under this proposal. All other requirements covered by 2750.02 remain in effect.

Respondents/affected entities: Light- and medium-duty vehicle manufacturers, alternative fuel converters, and independent commercial importers.

Respondent's obligation to respond: This proposal relieves manufacturers of the burden to provide certain information to the EPA as part of their annual model year vehicle certification under section 208(a) of the CAA, which is required prior to entering vehicles into commerce. Participation in some programs is voluntary; but once a manufacturer has elected to participate, it must submit the required information.

Estimated number of respondents: 35 affected entities.

Frequency of response: Annually or on occasion, depending on the type of response.

Revised total estimated burden: 138,443 hours (per year) for remaining regulatory requirements covered by this ICR. Burden is defined at 5 CFR 1320.3(b).

Revised total estimated cost: $26.3 million per year for remaining regulatory requirements covered by this ICR, which includes an estimated $14.2 million annualized capital or operation and maintenance costs.

2. Heavy-Duty Vehicle GHG Phase 3—2024 Final Rule

The ICR document prepared by the EPA for removal of the heavy-duty GHG Phase 3 requirements has been assigned EPA ICR 2734.03, revising EPA ICR 2734.02 (OMB 2060–0753). You can find a copy of the ICR in the docket for this rule and it is briefly summarized here.

The EPA is proposing to remove all regulations that require heavy-duty motor vehicle and heavy-duty motor vehicle engine manufacturers to measure, report, or comply with the heavy-duty GHG Phase 3 standards. Information collected to assure compliance with those requirements is no longer needed under this proposal.

Respondents/affected entities: Manufacturers of heavy-duty onroad vehicles.

Respondent's obligation to respond: This proposal relieves manufacturers of the burden to provide certain information to the EPA as part of their annual model year engine and vehicle certification under section 203(a) of the CAA, which is required prior to entering vehicles into commerce.

Estimated number of respondents: 77 affected entities.

Frequency of response: Originally expected to be one-time burden; now, no requirement to report.

Revised total estimated burden: 0 hours. Burden is defined at 5 CFR 1320.03(b).

Revised total estimated cost: $0.

3. Nonroad Compression-Ignition Engines and On-Highway Heavy Duty Engines, Supporting Statement for Information Collection Request (March 2023 Revision)

The ICR document prepared by the EPA for removal of the existing Phase 2 and earlier GHG requirements for heavy-duty engines and vehicles has been assigned EPA ICR 1684.22, revising EPA ICR 1684.21 (OMB 2060–0287). You can find a copy of the ICR in the docket for this rule and it is briefly summarized here.

The EPA is proposing to remove all regulations that require heavy-duty motor vehicle and heavy-duty motor vehicle engine manufacturers to measure, report, or comply with standards for GHG emissions. Information collected to assure compliance with those requirements is no longer needed under this proposal. All other requirements covered by EPA ICR 1684.21 remain in effect.

Respondents/affected entities: Manufacturers of heavy-duty onroad vehicles and engines.

Respondent's obligation to respond: This proposal relieves manufacturers of the burden to provide certain information to the EPA as part of their annual model year engine and vehicle certification under CAA section 203(a), which is required prior to entering vehicles into commerce. Participation in some programs is voluntary; but once a manufacturer has elected to participate, it must submit the required information.

Estimated number of respondents: 568 affected entities.

Frequency of response: Annually or on occasion, depending on the type of response.

Revised total estimated burden: 137,824 hours for remaining regulatory requirements covered by this ICR. Burden is defined at 5 CFR 1320.03(b).

Revised total estimated cost: $30.3 million for remaining regulatory requirements covered by this ICR, which includes an estimated $17.9 million annualized capital or operation and maintenance costs.

D. Regulatory Flexibility Act (RFA)

I certify that this proposed action would not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (RFA). In making this determination, the EPA concludes that the impact of concern for this rule is any significant adverse economic impact on small entities, and that the agency is certifying that this rule will not have a significant economic impact on a substantial number of small entities because the rule relieves regulatory burden on the small entities subject to the rule.

The regulated entities that are subject to the regulations we are proposing to remove in this proposed rule are engine and vehicle manufacturers, alternative fuel converters, and independent commercial importers subject to GHG emissions standards for vehicles. The Agency is certifying that this proposed action would not have a significant economic impact on a substantial number of small entities because the proposed action would relieve regulatory burden on all entities, including all small entities, subject to the current rules. This action proposes to remove portions of the regulations of the standard-setting parts directly related to GHG emission standards and compliance provisions for implementing the EPA's GHG engine and vehicle programs. We do not anticipate that there would be any significant adverse economic impact on directly regulated small entities as a result of these revisions. We have therefore concluded that this proposed action would, if finalized, relieve regulatory burden for all directly regulated small entities. The EPA provides additional information on the RFA in Section 7 of the Draft Regulatory Impact Analysis document for this proposal.

E. Unfunded Mandates Reform Act (UMRA)

This proposed action does not contain an unfunded mandate of $100 million (adjusted annually for inflation) or more (in 1995 dollars) as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The proposed action would, if finalized, impose no enforceable duty on any state, local, or tribal governments, and would relieve duties with respect to the private sector.

F. Executive Order 13132: Federalism

This proposed action would not have federalism implications as specified in Executive Order 13132. If finalized, it would 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.

G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This proposed action would not have tribal implications as specified in Executive Order 13175. If finalized, it would not have substantial direct effects on tribal governments, on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this proposed action.

H. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 directs federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in federal health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is subject to Executive Order 13045 because it is a significant regulatory action under section 3(f)(1) of Executive Order 12866, and the EPA believes the environmental health or safety risks of the pollutants impacted by this action may have a disproportionate effect on children. The 2021 Policy on Children's Health also applies to this action.[141]

Although the GHG emissions at issue in this rulemaking do not have direct impacts on human health, we acknowledge the possibility that this proposal could marginally impact emissions of criteria pollutants and air toxics. Children are not expected to experience greater ambient concentrations of air pollutants than the general population. However, children are more susceptible than adults to air pollution, and children tend to spend increased time outdoors. Children make up a substantial fraction of the U.S. population, and often have unique factors that contribute to their increased risk of experiencing a health effect from exposures to ambient air pollutants because of their continuous growth and development. Children are more susceptible than adults to many air pollutants because they have (1) a developing respiratory system, (2) increased ventilation rates relative to body mass compared with adults, (3) an increased proportion of oral breathing, particularly in boys, relative to adults, and (4) behaviors that increase chances for exposure. Even before birth, the developing fetus may be exposed to air pollutants through the mother that affect development when the mother is exposed. We note that, as explained above, this proposed action would not impact separate regulatory controls for criteria pollutants or separate standards set by NHTSA. At this time, the EPA does not believe that the proposed action would have a material adverse impact on the health of individuals with respect to non-GHG air pollutants, including on children, because the EPA anticipates that the impacts of repealing GHG emission regulations would have only marginal and incidental impacts on the emission of non-GHG air pollutants. Potential health impacts of such air pollutants will continue to be controlled through direct emissions limits and a

[141] U.S. Environmental Protection Agency. (2021). 2021 Policy on Children's Health: *https://www.epa.gov/system/files/documents/2021-10/2021-policy-on-childrens-health.pdf.*

number of other programs that target regional and national air quality, including the NAAQS program.

I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This proposed action, which is a significant regulatory action under Executive Order 12866, would have a significant effect on the supply, distribution or use of energy. The EPA has prepared a Statement of Energy Effects for this proposed action as follows.

This action proposes to remove the GHG emission standards and related compliance provisions for light-, medium-, and heavy-duty engines and vehicles. This action would, if finalized, result in an estimated increase in the consumption of petroleum and an estimated reduction in the consumption of electricity.

J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51

This proposed action involves technical standards. However, the proposed changes to the regulation include removing GHG emission standards and the corresponding measurement and compliance procedures, some of which also involve removing existing references to voluntary consensus standards and other technical standards. This proposed action does not include any new requirements or new references to technical standards.

List of Subjects

40 CFR Part 85

Confidential business information, Greenhouse gases, Imports, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements, Research Warranties.

40 CFR Part 86

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

40 CFR Part 600

Environmental protection, Administrative practice and procedure, Electric power, Fuel economy, Greenhouse gases, Labeling, Reporting and recordkeeping requirements.

40 CFR Part 1036

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

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.

40 CFR Part 1039

Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Labeling, Penalties, Reporting and recordkeeping requirements, Warranties.

Lee Zeldin,

Administrator.

For the reasons set out in the preamble, we propose to amend title 40, Chapter I of the Code of Federal Regulations as set forth below.

PART 85—CONTROL OF AIR POLLUTION FROM MOBILE SOURCES

■ 1. The authority citation for part 85 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

§ 85.525 [Amended]

■ 2. Amend § 85.525 by removing and reserving paragraph (b).

■ 3. Amend § 85.1515 by revising paragraph (d) to read as follows:

§ 85.1515 Emission standards and test procedures applicable to imported nonconforming motor vehicles and motor vehicle engines.

* * * * *

(d) An ICI may not certify using nonconformance penalties.

§ 85.1803 [Amended]

■ 4. Amend § 85.1803 by removing paragraph (e).

§ 85.1805 [Amended]

■ 5. Amend § 85.1805 by removing and reserving paragraph (b).

■ 6. Amend § 86.1902 by removing and reserving paragraph (b)(2) and revising paragraph (d). The revision reads as follows:

§ 85.1902 Definitions.

* * * * *

(d) *Voluntary emissions recall* means a repair, adjustment, or modification program voluntarily initiated and conducted by a manufacturer to remedy any emission-related defect for which direct notification of vehicle or engine owners has been provided.

* * * * *

§ 85.2103 [Amended]

■ 7. Amend § 85.2103 by removing paragraphs (d)(1)(v) and (d)(3).

PART 86—CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES

■ 8. The authority citation for part 86 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

§ 86.1 [Amended]

■ 9. Amend § 86.1 by removing and reserving paragraphs (c)(2) and (3) and (f)(3), (17), (21), and (22) and removing paragraph (h).

■ 10. Amend § 86.007–11 by revising paragraphs (g)(1) and (6) to read as follows:

§ 86.007–11 Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles.

* * * * *

(g) * * *

(1) The engines must be of a configuration that is identical to one that is certified under 40 CFR part 1039, and must be certified with a Family Emission Limit for PM of 0.020 g/kW-hr using the same duty cycles that apply under 40 CFR part 1039.

* * * * *

(6) Engines certified under this paragraph (g) may not generate or use emission credits under this part or under 40 CFR part 1039.

* * * * *

■ 11. Amend § 86.008–10 by revising paragraph (g)(6) to read as follows:

§ 86.008–10 Emission standards for 2008 and later model year Otto-cycle heavy-duty engines and vehicles.

* * * * *

(g) * * *

(6) Engines certified under this paragraph (g) may not generate or use emission credits under this part.

* * * * *

■ 12. Amend § 86.1801–12 by:

■ a. Removing and reserving paragraph (a)(2)(ii)(B);

■ b. Revising paragraphs (a)(3), (b), and (i); and

■ c. Removing paragraphs (j) and (k).

The revisions read as follows:

§ 86.1801–12 Applicability.

(a) * * *

(3) The provisions of this subpart do not apply to heavy-duty vehicles above 14,000 pounds GVWR (see § 86.016–1

and 40 CFR parts 1036 and 1037), except as follows:

(i) Heavy-duty vehicles above 14,000 pounds GVWR and at or below 19,500 pounds GVWR may be optionally certified to the exhaust emission standards in this subpart if they are properly included in a test group with similar vehicles at or below 14,000 pounds GVWR. Emission standards apply to these vehicles as if they were Class 3 medium-duty vehicles.

(ii) [Reserved]

(iii) Evaporative and refueling emission standards apply for heavy-duty vehicles above 14,000 pounds GVWR as specified in 40 CFR 1037.103.

* * * * *

(b) *Relationship to 40 CFR parts 1036 and 1037.* If any heavy-duty vehicle is not subject to standards and certification requirements under this subpart, the vehicle and its installed engine are instead subject to standards and certification requirements under 40 CFR parts 1036 and 1037, as applicable. If you optionally certify engines or vehicles to standards under 40 CFR part 1036 or 40 CFR part 1037, respectively, those engines or vehicles are subject to all the regulatory requirements in 40 CFR parts 1036 and 1037 as if they were mandatory.

* * * * *

(i) *Types of pollutants.* Criteria pollutant standards apply for NO_X, NMOG, HC, formaldehyde, PM, and CO, including exhaust, evaporative, and refueling emission standards. These pollutants are sometimes described collectively as ''criteria pollutants'' because they are either criteria pollutants under the Clean Air Act or precursors to the criteria pollutants ozone and PM.

■ 13. Amend § 86.1803–01 by:

■ a. Removing the definitions of ''AC1'', ''AC2'', ''Air Conditioning Idle Test'', ''Base level'', ''Base tire'', ''Base vehicle'', ''Combined CO_2'', ''Combined CREE'', and ''Configuration'';

■ b. Revising the definition of ''Defeat device'';

■ c. Removing and reserving paragraph (1) of the definition of ''Emergency vehicle'';

■ d. Revising the definition of ''Engine code'';

■ e. Removing the definition of ''Footprint'', ''Full size pickup truck'', ''Mild hybrid electric vehicle'', ''Strong hybrid electric vehicle'', ''Subconfiguration'', ''Track width'', and ''Transmission class''; and

■ f. Adding a definition of ''Work factor'' in alphabetical order.

The revisions and addition read as follows:

§ 86.1803–01 Definitions.

* * * * *

Defeat device means an auxiliary emission control device (AECD) that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless:

(1) Such conditions are substantially included in driving cycles specified in this subpart or the fuel economy test procedures in 40 CFR part 600;

(2) The need for the AECD is justified in terms of protecting the vehicle against damage or accident;

(3) The AECD does not go beyond the requirements of engine starting; or

(4) The AECD applies only for emergency vehicles and the need is justified in terms of preventing the vehicle from losing speed, torque, or power due to abnormal conditions of the emission control system, or in terms of preventing such abnormal conditions from occurring, during operation related to emergency response. Examples of such abnormal conditions may include excessive exhaust backpressure from an overloaded particulate trap, and running out of diesel exhaust fluid for engines that rely on urea-based selective catalytic reduction.

* * * * *

Engine code means a unique combination within a test group of displacement, fuel injection (or carburetor) calibration, choke calibration, distributor calibration, auxiliary emission control devices, and other engine and emission control system components specified by the Administrator. For electric vehicles, engine code means a unique combination of manufacturer, electric traction motor, motor configuration, motor controller, and energy storage device.*

* * * * *

Work factor, WF, means the characteristic value representing a vehicle's work potential, calculated to the nearest pound using the following equation:

$$WF = 0.75 \times (GVWR - Curb\ Weight + xwd) + 0.25 \times (GCWR - GVWR)$$

Where:

xwd = 500 pounds if the vehicle has four-wheel drive or all-wheel drive; xwd = 0 pounds for all other vehicles.

* * * * *

■ 14. Amend § 86.1805–12 by revising paragraph (a) to read as follows:

§ 86.1805–12 Useful life.

(a) Except as permitted under paragraph (b) of this section or required under paragraphs (c) and (d) of this section, the full useful life for all LDVs and LLDTs is a period of use of 10 years or 120,000 miles, whichever occurs first. The full useful life for all HLDTs, MDPVs, and complete heavy-duty vehicles is a period of 11 years or 120,000 miles, whichever occurs first. These full useful life values apply to all exhaust, evaporative and refueling emission requirements except for standards which are specified to only be applicable at the time of certification.

* * * * *

■ 15. Revise § 86.1805–17 to read as follows:

§ 86.1805–17 Useful life.

(a) *General provisions.* The useful life values specified in this section apply for all exhaust, evaporative, refueling, and OBD emission requirements described in this subpart, except for standards that are specified to apply only at certification. Useful life values are specified as a given number of calendar years or miles of driving, whichever comes first.

(b) [Reserved]

(c) *Cold temperature emission standards.* The cold temperature NMHC emission standards in § 86.1811–17 apply for a useful life of 10 years or 120,000 miles for LDV and LLDT, and 11 years or 120,000 miles for HLDT and HDV. The cold temperature CO emission standards in § 86.1811–17 apply for a useful life of 5 years or 50,000 miles.

(d) *Criteria pollutants.* The useful life provisions of this paragraph (d) apply for all emission standards not covered by paragraph (c) of this section. This paragraph (d) applies for the cold temperature emission standards in § 86.1811–27(c). Except as specified in paragraph (f) of this section and in § § 86.1811, 86.1813, and 86.1816, the useful life for LDT2, HLDT, MDPV, and HDV is 15 years or 150,000 miles. The useful life for LDV and LDT1 is 10 years or 120,000 miles. Manufacturers may optionally certify LDV and LDT1 to a useful life of 15 years or 150,000 miles, in which case the longer useful life would apply for all the standards and requirements covered by this paragraph (d).

(e) *Intermediate useful life.* Where exhaust emission standards are specified for an intermediate useful life, these standards apply for five years or 50,000 miles.

§ 86.1807–01 [Amended]

■ 16. Amend § 86.1807–01 by removing and reserving paragraph (a)(3)(iv).

■ 17. Amend § 86.1809–12 by revising paragraph (d)(1) to read as follows:

§ 86.1809–12 Prohibition of defeat devices.

* * * * *

(d) * * *

(1) The manufacturer must show to EPA's satisfaction that the vehicle design does not incorporate strategies that unnecessarily reduce emission control effectiveness exhibited over the driving cycles specified in this subpart or the fuel economy test procedures in 40 CFR part 600 when the vehicle is operated under conditions that may reasonably be expected to be encountered in normal operation and use.

* * * * *

■ 18. Amend § 86.1810–09 by revising paragraph (f)(2) to read as follows:

§ 86.1810–09 General standards; increase in emissions; unsafe condition; waivers.

* * * * *

(f) * * *

(2) For vehicles that comply with the cold temperature NMHC standards described in § 86.1811–10(g), manufacturers must submit an engineering evaluation indicating that common calibration approaches are utilized at high altitudes (except when there are specific high altitude calibration needs to deviate from low altitude emission control practices). Any deviation from low altitude emission control practices must be included in the auxiliary emission control device (AECD) descriptions submitted at certification. Any AECD specific to high altitude must require engineering emission data for EPA evaluation to quantify any emission impact and validity of the AECD.

* * * * *

■ 19. Amend § 86.1810–17 by revising paragraph (j) to read as follows:

§ 86.1810–17 General requirements.

* * * * *

(j) Small-volume manufacturers that modify a vehicle already certified by a different company may recertify that vehicle under this subpart S based on the vehicle supplier's compliance with fleet average standards for criteria exhaust emissions and evaporative emissions as follows:

(1) The recertifying manufacturer must certify the vehicle at bin levels and family emission limits that are the same as or more stringent than the corresponding bin levels and family emission limits for the vehicle supplier.

(2) The recertifying manufacturer must meet all the standards and requirements described in this subpart S, except for the fleet average standards for criteria exhaust emissions and evaporative emissions.

(3) The vehicle supplier must send the small-volume manufacturer a written statement accepting responsibility to include the subject vehicles in the vehicle supplier's exhaust and evaporative fleet average calculations in §§ 86.1860–17 and 86.1864–10.

(4) The small-volume manufacturer must describe in the application for certification how the two companies are working together to demonstrate compliance for the subject vehicles. The application must include the statement from the vehicle supplier described in paragraph (j)(3) of this section.

(5) The vehicle supplier must include a statement that the vehicle supplier is including the small volume manufacturer's sales volume and emissions levels in the vehicle supplier's fleet average reports under §§ 86.1860–17 and 86.1864–10.

* * * * *

■ 20. Amend § 86.1805–12 by revising paragraph (a) to read as follows:

§ 86.1811–17 Exhaust emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.

(a) *Applicability and general provisions.* This section describes exhaust emission standards that apply for model year 2017 and later light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles. MDPVs are subject to all the same emission standards and certification provisions that apply to LDT4. Some of the provisions of this section also apply to heavy-duty vehicles as specified in § 86.1816. See § 86.1813 for evaporative and refueling emission standards. This section may apply to vehicles from model years earlier than 2017 as specified in paragraph (b)(11) of this section.

* * * * *

§ 86.1811–27 [Amended]

■ 21. Amend § 86.1811–27 by removing paragraph (a)(4).

§ 86.1815–27 [Removed]

■ 22. Remove § 86.1815–27.

■ 23. Amend § 86.1816–18 by revising paragraph (a) to read as follows:

§ 86.1816–18 Emission standards for heavy-duty vehicles.

(a) *Applicability and general provisions.* This section describes Tier 3 exhaust emission standards for complete heavy-duty vehicles. These standards are optional for incomplete heavy-duty vehicles and for heavy-duty vehicles above 14,000 pounds GVWR as described in § 86.1801. See § 86.1813 for evaporative and refueling emission standards. This section starts to apply in model year 2018, except that the provisions may apply to vehicles before model year 2018 as specified in paragraph (b)(11) of this section. This section applies for model year 2027 and later vehicles only as specified in § 86.1811–27. Separate requirements apply for MDPV as specified in § 86.1811. See subpart A of this part for requirements that apply for incomplete heavy-duty vehicles and for heavy-duty engines certified independent of the chassis. The following general provisions apply:

(1) Test all vehicles as described in this section using a chassis dynamometer; establish appropriate load settings based on adjusted loaded vehicle weight (see § 86.1803).

(2) Some provisions apply differently depending on the vehicle's power-to-weight ratio. Determine a vehicle's power-to-weight ratio by dividing the engine's rated power by the vehicle's GVWR (in hp/pound). For purposes of this section, if a test group includes multiple vehicle configurations, use the vehicle with the highest power-to-weight ratio to characterize the test group.

(3) Use E10 test fuel as required in § 86.113, except as specified in this section.

(4) Measure emissions from hybrid electric vehicles (including plug-in hybrid electric vehicles) as described in 40 CFR part 1066, subpart F, except that these procedures do not apply for plug-in hybrid electric vehicles during charge-depleting operation.

* * * * *

§ § 86.1818–12 and 86.1819–14 [Removed]

■ 24. Remove §§ 86.1818–12 and 86.1819–14.

■ 25. Amend § 86.1822–01 by revising paragraph (b) to read as follows:

§ 86.1822–01 Durability data vehicle selection.

* * * * *

(b) The manufacturer may select, using good engineering judgment, an equivalent or worst-case vehicle configuration in lieu of testing the vehicle selected in paragraph (a) of this section. Carryover data satisfying the provisions of § 86.1839–01 may also be used in lieu of testing the vehicle configuration selected in paragraph (a) of this section.

§ 86.1823–08 [Amended]

■ 26. Amend § 86.1823–08 by removing and reserving paragraph (m).

■ 27. Amend § 86.1827–01 by revising paragraph (a)(5) to read as follows:

§ 86.1827–01 Test group determination.

* * * * *

(a) * * *

(5) Subject to the same emission standards, or FEL in the case of cold temperature NMHC or NMOG+NO_X standards, except that a manufacturer may request to group vehicles into the same test group as vehicles subject to more stringent standards, so long as all the vehicles within the test group are certified to the most stringent standards applicable to any vehicle within that test group. For example, manufacturers may include medium-duty vehicles at or below 22,000 pounds GCWR in the same test group with medium-duty vehicles above 22,000 pounds GCWR, but all vehicles included in the test group are then subject to the off-cycle emission standards and testing requirements described in § 86.1811–27(e). Light-duty trucks and light-duty vehicles may be included in the same test group if all vehicles in the test group are subject to the same criteria exhaust emission standards.

* * * * *

■ 28. Amend § 86.1828–01 by revising paragraph (e) to read as follows:

§ 86.1828–01 Emission data vehicle selection.

* * * * *

(e) *Alternative vehicle configurations.* The manufacturer may use good engineering judgment to select an equivalent or worst-case vehicle configuration in lieu of testing the vehicle selected in paragraphs (a) through (c) of this section. Carryover data satisfying the provisions of § 86.1839 may also be used in lieu of testing the vehicle configuration selected in paragraphs (a) through (c) of this section.

* * * * *

■ 29. Amend § 86.1829–15 by:

■ a. Revising paragraph (d)(3);

■ b. Removing and reserving paragraph (d)(6); and

■ c. Revising paragraph (d)(8).

The revisions read as follows:

§ 86.1829–15 Durability and emission testing requirements; waivers.

* * * * *

(d) * * *

(3) Manufacturers may omit PM measurements for fuel economy testing conducted in addition to the testing needed to demonstrate compliance with the PM emission standards.

* * * * *

(8) Manufacturers may provide a statement in the application for certification that medium-duty vehicles above 22,000 pounds GCWR comply with the off-cycle emission standards in § 86.1811–27(e) for all normal operation and use when tested as specified. Describe in the application for certification under § 86.1844–01(d)(8) any relevant testing, engineering analysis, or other information in sufficient detail to support the statement. We may direct you to include emission measurements representing typical engine in-use operation at a range of ambient conditions. For example, we may specify certain transient and steady-state engine operation that is typical for your vehicles. Also describe the procedure you used to determine a reference brake-specific CO_2 emission rate, e_{CO2FTP}, under § 86.1845–04(h)(6).

* * * * *

■ 30. Amend § 86.1831–01 by revising paragraphs (a)(3) and (c)(2) to read as follows:

§ 86.1830–01 Acceptance of vehicles for emission testing.

(a) * * *

(3) Test vehicles must have air conditioning installed and operational if that vehicle configuration is available with air conditioning. Optional equipment must be installed or represented on test vehicles according to the provisions of § 86.1832–01.

* * * * *

(c) * * *

(2) Within a durability group, the manufacturer may alter any emission data vehicle (or other vehicles such as current or previous model year emission data vehicles, running change vehicles, fuel economy data vehicles, and development vehicles) in lieu of building a new test vehicle providing that the modification will not impact the representativeness of the vehicle's test results. Manufacturers shall use good engineering judgment in making such determinations. Development vehicles which were used to develop the calibration selected for emission data testing may not be used as the EDV for that vehicle configuration. Vehicles from outside the durability group may be altered with advance approval of the Administrator.

* * * * *

■ 31. Amend § 86.1835–01 by revising paragraphs (a)(4), (b)(3), and (c) to read as follows:

§ 86.1835–01 Confirmatory certification testing.

(a) * * *

(4) Retesting for fuel economy may be conducted under the provisions of 40 CFR 600.008–08.

(b) * * *

(3) For light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles the manufacturer shall conduct a retest of the FTP or highway test if the difference between the fuel economy of the confirmatory test and the original manufacturer's test equals or exceeds three percent (or such lower percentage to be applied consistently to all manufacturer conducted confirmatory testing as requested by the manufacturer and approved by the Administrator).

(i) For use in the fuel economy program described in 40 CFR part 600, the manufacturer may, in lieu of conducting a retest, accept as official the lower of the original and confirmatory test fuel economy results.

(ii) The manufacturer shall conduct a second retest of the FTP or highway test if the fuel economy difference between the second confirmatory test and the original manufacturer test equals or exceeds three percent (or such lower percentage as requested by the manufacturer and approved by the Administrator) and the fuel economy difference between the second confirmatory test and the first confirmatory test equals or exceeds three percent (or such lower percentage as requested by the manufacturer and approved by the Administrator). In lieu of conducting a second retest, the manufacturer may accept as official (for use in the fuel economy program) the lowest fuel economy of the original test, the first confirmatory test, and the second confirmatory test fuel economy results.

(c) *Official test determination.* (1) Whenever the Administrator or the manufacturer conducts a confirmatory test segment on a test vehicle, the results of that test segment, unless subsequently invalidated by the Administrator, shall comprise the official data for that test segment for the vehicle at the prescribed test point and the manufacturer's original test data for that test segment for that prescribed test point shall not be used in determining compliance with emission standards.

(i) If the Administrator or the manufacturer conducts more than one passing, valid, confirmatory test, the results from the first passing, valid confirmatory test shall be considered official and used in determining compliance with emission standards.

(ii) Official test results for fuel economy are determined in accordance with the provisions of § 600.008–08 of this chapter.

(iii) The Administrator may stop a test after any evaporative test segment and use as official data any valid results obtained up to that point in the test, as described in subpart B of this part.

(2) Whenever the Administrator or the manufacturer does not conduct a

confirmatory test on a test vehicle at a test point, the manufacturer's original test data will be accepted as the official data for that point.

(i) If the Administrator makes a determination based on testing under paragraph (a) of this section (or other appropriate correlation test data), that there is a lack of correlation between the manufacturer's test equipment or procedures and the test equipment or procedures used by the Administrator, no manufacturer's test data will be accepted for purposes of certification until the reasons for the lack of correlation are determined and the validity of the data is established by the manufacturer.

(ii) If the Administrator has reasonable basis to believe that any test data submitted by the manufacturer is not accurate or has been obtained in violation of any provisions of this subpart, the Administrator may refuse to accept that data as the official data pending retesting or submission of further information.

(iii) If the manufacturer conducts more than one test on an emission data vehicle in the same vehicle configuration (excluding confirmatory tests run under paragraph (b) of this section), the data from the last test in that series of tests on that vehicle, will constitute the official data.

* * * * *

§ 86.1838–01 [Amended]

■ 32. Amend § 86.1838–01 by removing and reserving paragraph (b)(1)(i)(B).

■ 33. Revise § 86.1839–01 to read as follows:

§ 86.1839–01 Carryover of certification and battery monitoring data.

(a) In lieu of testing an emission-data or durability vehicle selected under § 86.1822, § 86.1828, or § 86.1829, and submitting data therefrom, a manufacturer may submit exhaust emission data, evaporative emission data and/or refueling emission data, as applicable, on a similar vehicle for which certification has been obtained or for which all applicable data required under § 86.1845 has previously been submitted. To be eligible for this provision, the manufacturer must use good engineering judgment and meet the following criteria:

(1) In the case of durability data, the manufacturer must determine that the previously generated durability data represent a worst case or equivalent rate of deterioration for all applicable emission constituents compared to the vehicle configuration selected for durability demonstration. Prior to certification, the Administrator may require the manufacturer to provide data showing that the distribution of catalyst temperatures of the selected durability vehicle configuration is effectively equivalent or lower than the distribution of catalyst temperatures of the vehicle configuration which is the source of the previously generated data.

(2) In the case of emission data, the manufacturer must determine that the previously generated emissions data represent a worst case or equivalent level of emissions for all applicable emission constituents compared to the vehicle configuration selected for emission compliance demonstration.

(b) In lieu of using newly aged hardware on an EDV as allowed under the provisions of § 86.1823–08(f)(2), a manufacturer may use similar hardware aged for an EDV previously submitted, provided that the manufacturer determines that the previously aged hardware represents a worst case or equivalent rate of deterioration for all applicable emission constituents for durability demonstration.

§ 86.1841–01 [Amended]

■ 34. Amend § 86.1841–01 by removing and reserving paragraph (a)(3).

■ 35. Amend § 86.1844–01 by:

■ a. Removing and reserving paragraph (d)(7)(iv);

■ b. Revising paragraph (d)(15);

■ c. Removing and reserving paragraph (d)(20); and

■ d. Revising paragraphs (e)(1) and (3).

The revisions read as follows:

§ 86.1844–01 Information requirements: Application for certification and submittal of information upon request.

* * * * *

(d) * * *

(15) For vehicles with fuel-fired heaters, describe the control system logic of the fuel-fired heater, including an evaluation of the conditions under which it can be operated and an evaluation of the possible operational modes and conditions under which evaporative emissions can exist. Use good engineering judgment to establish an estimated exhaust emission rate from the fuel-fired heater in grams per mile for each pollutant subject to a fleet average standard. Adjust fleet average compliance calculations in §§ 86.1861 and 86.1864 as appropriate to account for emissions from fuel-fired heaters. Describe the testing used to establish the exhaust emission rate.

* * * * *

(e) * * *

(1) Identify all emission-related components. Also identify software, AECDs, and other elements of design that are used to control exhaust or evaporative/refueling emissions. Identify the emission-related components by part number. Identify software by part number or other convention, as appropriate. Organize part numbers by engine code or other similar classification scheme.

* * * * *

(3) Identification and description of all vehicles covered by each certificate of conformity to be produced and sold within the U.S. The description must be sufficient to identify whether any given in-use vehicle is, or is not, covered by a given certificate of conformity, the test group and the evaporative/refueling family to which it belongs and the standards that are applicable to it, by matching readily observable vehicle characteristics and information given in the emission control information label (and other permanently attached labels) to indicators in the Part 1 Application. For example, the description must include any components or features that contribute to measured or demonstrated control of emissions for meeting exhaust or evaporative/refueling standards under this subpart. In addition, the description must be sufficient to determine for each vehicle covered by the certificate, all appropriate test parameters and any special test procedures necessary to conduct an official certification exhaust or evaporative emission test as was required by this subpart to demonstrate compliance with applicable emission standards. The description shall include, but is not limited to, information such as model name, vehicle classification (light-duty vehicle, light-duty truck, or complete heavy-duty vehicle), sales area, engine displacement, engine code, transmission type, tire size and parameters necessary to conduct exhaust emission tests such as equivalent test weight, curb and gross vehicle weight, test horsepower (with and without air conditioning adjustment), coast down time, shift schedules, cooling fan configuration, etc. and evaporative tests such as canister working capacity, canister bed volume, and fuel temperature profile. Actual values must be provided for all parameters.

* * * * *

■ 36. Amend § 86.1845–04 by:

■ a. Revising paragraphs (b)(5)(i) and (c)(5)(i);

■ b. Removing and reserving paragraph (g); and

■ d. Revising paragraph (h)(6).

The revisions read as follows:

§ 86.1845–04 Manufacturer in-use verification testing requirements.

* * * * *

(b) * * *

(5) *Testing.* (i) Each test vehicle of a test group shall be tested in accordance with the FTP and the US06 as described in subpart B of this part, when such test vehicle is tested for compliance with applicable exhaust emission standards under this subpart.

* * * * *

(c) * * *

(5) *Testing.* (i) Each test vehicle shall be tested in accordance with the FTP and the US06 as described in subpart B of this part when such test vehicle is tested for compliance with applicable exhaust emission standards under this subpart. One test vehicle from each test group shall be tested over the FTP at high altitude. The test vehicle tested at high altitude is not required to be one of the same test vehicles tested at low altitude. The test vehicle tested at high altitude is counted when determining the compliance with the requirements shown in Table S04–06 and Table S04–07 (tables 1 and 2 to paragraph (b)(3) of this section) or the expanded sample size as provided for in this paragraph (c).

* * * * *

(h) * * *

(6) Determine a reference CO_2 emission rate, e_{CO2FTP}, as described in 40 CFR 1036.235(b) or based on measured values from any chassis FTP driving cycles under 40 CFR part 1066, subpart I, that is used for reporting data from an emission data vehicle or a fuel economy data vehicle, as follows:

Equation 1 to Paragraph (h)(6)

$$e_{CO2FTP} = \frac{m_{CO2FTP}}{W_{FTP}}$$

Where:

m_{CO2FTP} = CO_2 emission mass in grams emitted over the FTP driving cycle.

d_{FTP} = measured driving distance in miles.

W_{FTP} = work performed over the FTP.

$$W_{\mathrm{FTP}} = \sum_{i=1}^{N} f_{\mathrm{n}i} \cdot T_i \cdot \Delta t$$

i = an indexing variable that represents a 1 Hz OBD time counter over the course of the FTP drive.

N = total number of measurements over the FTP duty cycle = 1874.

f_n = engine speed for each point, *i,* starting from the start of the FTP drive at $i = 1$, collected from OBD PID $0C.

T = engine torque in N·m for each point, *i,* starting from $i = 1$. Calculate T by subtracting Friction Torque (PID $8E) from Indicated Torque (PID $62) (both PIDs are percentages) and then multiplying by the reference torque (PID $63). Set torque to zero if friction torque is greater than indicated torque.

$\Delta t = 1/f_{record}$.

f_{record} = the data recording frequency.

Example

m_{CO2FTP} = 10,961 g
N = 1874
f_1 = 687.3 r/min = 71.97 rad/s
f_2 = 689.7 r/min = 72.23 rad/s
T_1 = 37.1 ft·lbf = 50.3 N·m
T_2 = 37.2 ft·lbf = 50.4 N·m
f_{record} = 1 Hz
Δt = ⅟₁ = 1 s = 0.000277 hr
$W_{FTP} = 71.97 \cdot 50.3 \cdot 1.0 + 72.23 \cdot 50.4 \cdot 1.0 + \cdot \cdot \cdot f_{n1874} \cdot T_{1874} \cdot \Delta t_{1874}$
W_{FTP} = 53,958,852 W·s = 20.1 hp·hr

$$e_{CO2FTP} = \frac{10{,}961}{20.1}$$

e_{CO2FTP} = 545.3 g/hp·hr

* * * * *

■ 37. Amend § 86.1846–01 by:

■ a. Revising paragraph (a); and

■ b. Removing and reserving paragraph (b)(2).

The revision read as follows:

§ 86.1846–01 Manufacturer in-use confirmatory testing requirements.

(a) *General requirements.*

(1) Manufacturers must test, or cause testing to be conducted, under this section when the emission levels shown by a test group sample from testing under § 86.1845 exceeds the criteria specified in paragraph (b) of this section. The testing required under this section applies separately to each test group and at each test point (low and high mileage) that meets the specified criteria. The testing requirements apply separately for each model year.

(2) The provisions of § 86.1845–04(a)(3) regarding fuel sulfur effects apply equally to testing under this section.

* * * * *

§ 86.1848–10 [Amended]

■ 38. Amend § 86.1848–10 by removing and reserving paragraph (c)(9).

■ 39. Amend § 86.1854–12 by revising paragraph (a)(2)(iv) to read as follows:

§ 86.1854–12 Prohibited acts.

(a) * * *

(2) * * *

(iv) For a person to fail to establish or maintain records as required under §§ 86.1844, 86.1862, and 86.1864 with regard to vehicles.

* * * * *

■ 40. Revise and republish § 86.1861–17 to read as follows:

§ 86.1861–17 How do the NMOG + NO_X and evaporative emission credit programs work?

You may use emission credits for purposes of certification to show compliance with the applicable fleet average NMOG+NO_X standards from § § 86.1811 and 86.1816 and the fleet average evaporative emission standards from § 86.1813 as described in 40 CFR part 1036, subpart H, with certain exceptions and clarifications as specified in this section. MDPVs are subject to the same provisions of this section that apply to LDT4.

(a) Calculate emission credits as described in this paragraph (a) instead of using the provisions of 40 CFR 1036.705. Calculate positive or negative emission credits relative to the applicable fleet average standard. Calculate positive emission credits if your fleet average level is below the standard. Calculate negative emission credits if your fleet average value is above the standard. Calculate credits separately for each applicable fleet average standard and calculate total credits for each averaging set as specified in paragraph (b) of this section. Convert units from mg/mile to g/mile as needed for performing calculations. Calculate emission credits using the following equation, rounded to the nearest whole number:

Equation 1 to Paragraph (a)

Emission credit = *Volume* · [*Fleet average standard* − *Fleet average value*]

Where:

Emission credit = The positive or negative credit for each discrete fleet average standard, in units of vehicle-grams per mile for NMOG+NO_X and vehicle-grams per test for evaporative emissions.

Volume = Sales volume in a given model year from the collection of test groups or evaporative families covered by the fleet average value, as described in § 86.1860.

(b) The following restrictions apply instead of those specified in 40 CFR 1036.740:

(1) Except as specified in paragraph (b)(2) of this section, emission credits may be exchanged only within an averaging set, as follows:

(i) HDV represent a separate averaging set with respect to all emission standards.

(ii) Except as specified in paragraph (b)(1)(iii) of this section, light-duty program vehicles represent a single averaging set with respect to all emission standards. Note that FTP and SFTP credits for Tier 3 vehicles are not interchangeable.

(iii) LDV and LDT1 certified to standards based on a useful life of 120,000 miles and 10 years together represent a single averaging set with respect to NMOG+NO_X emission standards. Note that FTP and SFTP credits for Tier 3 vehicles are not interchangeable.

(iv) The following separate averaging sets apply for evaporative emission standards:

(A) LDV and LDT1 together represent a single averaging set.

(B) LDT2 represents a single averaging set.

(C) HLDT represents a single averaging set.

(D) HDV represents a single averaging set.

(2) You may exchange evaporative emission credits across averaging sets as follows if you need additional credits to offset a deficit after the final year of maintaining deficit credits as allowed under paragraph (c) of this section:

(i) You may exchange LDV/LDT1 and LDT2 emission credits.

(ii) You may exchange HLDT and HDV emission credits.

(3) Except as specified in paragraph (b)(4) of this section, credits expire after five years. For example, credits you generate in model year 2018 may be used only through model year 2023.

(4) For the Tier 3 declining fleet average FTP and SFTP emission standards for NMOG+NO_X described in § 86.1811–17(b)(8), credits generated in model years 2017 through 2024 expire after eight years, or after model year 2030, whichever comes first; however, these credits may not be traded after five years. This extended credit life also applies for small-volume manufacturers generating credits under § 86.1811–17(h)(1) in model years 2022 through 2024. Note that the longer credit life does not apply for heavy-duty vehicles, for vehicles certified under the alternate phase-in described in § 86.1811–17(b)(9), or for vehicles generating early Tier 3 credits under § 86.1811–17(b)(11) in model year 2017.

(5) Tier 3 credits for NMOG+NO_X may be used to demonstrate compliance with Tier 4 standards without adjustment, except as specified in § 86.1811–27(b)(6)(ii).

(6) A manufacturer may generate NMOG+NO_X credits from model year 2027 through 2032 electric vehicles that qualify as MDPV and use those credits for certifying medium-duty vehicles, as follows:

(i) Calculate generated credits separately for qualifying vehicles. Calculate generated credits by multiplying the applicable standard for light-duty program vehicles by the sales volume of qualifying vehicles in a given model year.

(ii) Apply generated credits to eliminate any deficit for light-duty program vehicles before using them to certify medium-duty vehicles.

(iii) Apply the credit provisions of this section as specified, except that you may not buy or sell credits generated under this paragraph (b)(6).

(iv) Describe in annual credit reports how you are generating certain credit quantities under this paragraph (b)(6). Also describe in your end of year credit report how you will use those credits for certifying light-duty program vehicles or medium-duty vehicles in a given model year.

(c) The credit-deficit provisions 40 CFR 1036.745 apply to the NMOG+NO_X and evaporative emission standards for Tier 3 and Tier 4 vehicles. Credit-deficit provisions are not affected by the transition from Tier 3 to Tier 4 standards.

(d) The reporting and recordkeeping provisions of § 86.1862 apply instead of those specified in 40 CFR 1036.730 and 1036.735.

(e) The provisions of 40 CFR 1036.625 do not apply.

§§ 86.1865–12, 86.1866–12, 86.1867–12, and 86.1867–31 [Removed]

■ 41. Remove §§ 86.1865–12, 86.1866–12, 86.1867–12, and 86.1867–31.

■ 42. Amend § 86.1868–12 by:

■ a. Revising the introductory text and paragraph (c);

■ b. Removing and reserving paragraph (d); and

■ c. Revising paragraphs (g) introductory text and (g)(3) introductory text.

to read as follows:

§ 86.1868–12 CO_2 credits for improving the efficiency of air conditioning systems.

The regulation at 40 CFR 600.510 describes how manufacturers may calculate fuel consumption improvement values based on improvements to air conditioning efficiency. This section describes how to calculate credits to determine the average fuel economy for comparing to the Corporate Average Fuel Economy standard. The provisions of this section do not apply for medium-duty vehicles. Credits shall be calculated according to this section for each air conditioning system that the manufacturer is using to generate credits. Manufacturers must validate credits under this section based on testing as described in paragraph (g) of this section. Starting in model year 2027, manufacturers may generate credits under this section only for vehicles propelled by internal combustion engines.

* * * * *

(c) The total efficiency credits generated by an air conditioning system shall be calculated in megagrams separately for passenger automobiles and light trucks according to the following formula:

Equation 1 to Paragraph (c)

$$Total\ Credits = \frac{Credit \cdot Production \cdot VLM}{1{,}000{,}000}$$

Where:

Credit = the air conditioning efficiency credit in grams per mile determined in paragraph (b) of this section. Starting in

model year 2027, multiply the credit value for PHEV by (1–UF), where

UF = the fleet utility factor established under 40 CFR 600.116–12(c)(1) or (c)(10)(iii) (weighted 55 percent city, 45 percent highway.

Production = The total number of passenger automobiles or light trucks, whichever is applicable, produced with the air conditioning system to which to the efficiency credit value from paragraph (b) of this section applies.

VLM = vehicle lifetime miles, which for passenger automobiles shall be 195,264 and for light trucks shall be 225,865.

* * * * *

(g) For AC17 validation testing and reporting requirements, manufacturers must validate air conditioning efficiency credits by using the AC17 Test Procedure in 40 CFR 1066.845 as follows:

* * * * *

(3) For the first model year for which an air conditioning system is expected to generate credits, the manufacturer must select for testing the projected highest-selling vehicle configuration within each combination of vehicle platform and air conditioning system (as those terms are defined in § 86.1803). The manufacturer must test at least one unique air conditioning system within each vehicle platform in a model year, unless all unique air conditioning systems within a vehicle platform have been previously tested. A unique air conditioning system design is a system with unique or substantially different component designs or types and/or system control strategies (*e.g.,* fixed-displacement vs. variable displacement compressors, orifice tube vs. thermostatic expansion valve, single vs. dual evaporator, etc.). In the first year of such testing, the tested vehicle configuration shall be the highest production vehicle configuration within each platform. In subsequent model years the manufacturer must test other unique air conditioning systems within the vehicle platform, proceeding from the highest production untested system until all unique air conditioning systems within the platform have been tested, or until the vehicle platform experiences a major redesign. Whenever a new unique air conditioning system is tested, the highest production vehicle configuration using that system shall be the vehicle selected for testing. Credits may continue to be generated by the air conditioning system installed in a vehicle platform provided that:

* * * * *

■ 43. Amend § 86.1869–12 by revising the introductory text and paragraphs (a), (b)(1) introductory text, (b)(2) introductory text, (b)(2)(v), (c) introductory text, and (e)(2)(i) to read as follows:

§ 86.1869–12 CO_2 credits for off-cycle CO_2 reducing technologies.

The regulation at 40 CFR 600.510 describes how manufacturers may calculate fuel consumption improvement values based on vehicle improvements that are not reflected in testing to demonstrate compliance with exhaust emission standards. This section describes how to calculate credits to determine the average fuel economy for comparing to the Corporate Average Fuel Economy standard through model year 2032. The provisions of this section do not apply for medium-duty vehicles. Manufacturers may no longer generate credits under this section starting in model year 2027 for vehicles deemed to have zero tailpipe emissions and in model year 2033 for all other vehicles. Manufacturers may no longer generate credits under paragraphs (c) and (d) of this section for any type of vehicle starting in model year 2027.

(a) Manufacturers may generate credits for CO_2-reducing technologies where the CO_2 reduction benefit of the technology is not adequately captured on the Federal Test Procedure and/or the Highway Fuel Economy Test such that the technology would not be otherwise installed for purposes of meeting Corporate Average Fuel Economy standards. These technologies must have a measurable, demonstrable, and verifiable real-world CO_2 reduction that occurs outside the conditions of the Federal Test Procedure and the Highway Fuel Economy Test. These optional credits are referred to as ''off-cycle'' credits. The technologies must not be integral or inherent to the basic vehicle design, such as engine, transmission, mass reduction, passive aerodynamic design, and tire technologies. Technologies installed for non-off-cycle emissions related reasons are also not eligible as they would be considered part of the baseline vehicle design. The technology must not be inherent to the design of occupant comfort and entertainment features except for technologies related to reducing passenger air conditioning demand and improving air conditioning system efficiency. Notwithstanding the provisions of this paragraph (a), off-cycle menu technologies included in paragraph (b) of this section remain eligible for credits. Off-cycle technologies used to generate emission credits are considered emission-related components subject to applicable requirements and must be demonstrated to be effective for the full useful life of the vehicle. Unless the manufacturer demonstrates that the technology is not subject to in-use deterioration, the manufacturer must account for the deterioration in their analysis. Durability evaluations of off-cycle technologies may occur at any time throughout a model year, provided that the results can be factored into the data provided in the model year report. Off-cycle credits may not be approved for crash-avoidance technologies, safety critical systems or systems affecting safety-critical functions, or technologies designed for the purpose of reducing the frequency of vehicle crashes. Off-cycle credits may not be earned for technologies installed on a motor vehicle to attain compliance with any vehicle safety standard or any regulation set forth in Title 49 of the Code of Federal Regulations. The manufacturer must use one of the three options specified in this section to establish off-cycle credits under this section.

(b) * * *

(1) The manufacturer may generate off-cycle credits for certain technologies as specified in this paragraph (b)(1). Technology definitions are in paragraph (b)(4) of this section. Calculated credit values shall be rounded to the nearest 0.1 grams/mile.

* * * * *

(2) The maximum allowable off-cycle credit for the combined passenger automobile and light truck fleet attributable to use of the default credit values in paragraph (b)(1) of this section is specified in paragraph (b)(2)(v) of this section. If the total of the off-cycle credit values from paragraph (b)(1) of this section does not exceed the specified off-cycle credit cap for any passenger automobile or light truck in a manufacturer's fleet, then the total off-cycle credits may be calculated according to paragraph (f) of this section. If the total of the off-cycle credit values from paragraph (b)(1) of this section exceeds the specified off-cycle credit cap for any passenger automobile or light truck in a manufacturer's fleet, then the gram per mile decrease for the combined passenger automobile and light truck fleet must be determined according to paragraph (b)(2)(ii) of this section to determine whether the applicable limitation has been exceeded.

* * * * *

(v) The manufacturer's combined passenger automobile and light truck fleet average off-cycle credits attributable to use of the default credit values in paragraph (b)(1) of this section may not exceed the following specific values:

Model year	Off-cycle credit cap (g/mile)
(A) 2023–2026	15
(B) 2027–2030	10
(C) 2031	8.0
(D) 2032	6.0

* * * * *

(c) *Technology demonstration using EPA 5-cycle methodology.* To demonstrate an off-cycle technology and to determine off-cycle credits using the EPA 5-cycle methodology, the manufacturer shall determine the off-cycle city/highway combined carbon-related exhaust emissions benefit by using the EPA 5-cycle methodology described in 40 CFR part 600. This method may not be used for technologies that include elements (*e.g.,* driver-selectable systems) that require additional analyses, data collection, projections, or modeling, or other assessments to determine a national average benefit of the technology. Testing shall be performed on a representative vehicle, selected using good engineering judgment, for each model type for which the credit is being demonstrated. The emission benefit of a technology is determined by testing both with and without the off-cycle technology operating. If a specific technology is not expected to change emissions on one of the five test procedures, the manufacturer may submit an engineering analysis to the EPA that demonstrates that the technology has no effect. If EPA concurs with the analysis, then multiple tests are not required using that test procedure; instead, only one of that test procedure shall be required—either with or without the technology installed and operating—and that single value will be used for all of the 5-cycle weighting calculations. Multiple off-cycle technologies may be demonstrated on a test vehicle. The manufacturer shall conduct the following steps and submit all test data to the EPA.

* * * * *

(e) * * *

(2) * * *

(i) A detailed description of the off-cycle technology and how it functions to improve fuel economy under conditions not represented on the FTP and HFET.

* * * * *

§ 86.1870–12 [Removed]

■ 44. Remove § 86.1870–12.

PART 600—FUEL ECONOMY AND GREENHOUSE GAS EXHAUST EMISSIONS OF MOTOR VEHICLES

■ 45. The authority citation for part 600 continues to read as follows:

Authority: 49 U.S.C. 32901—23919q, Pub. L. 109–58.

§ 600.001 [Amended]

■ 46. Amend § 600.001 by removing the last sentence in paragraph (a) and the last two sentences in paragraph (c).

■ 47. Amend § 600.002 by:

■ a. Revising the definitions of ''Carbon-related exhaust emissions (CREE)'' and ''Engine code'';

■ b. Removing the definition of ''Footprint''; and

■ c. Revising the definitions of ''Medium-duty passenger vehicle ($MDPV_{FE}$)'', ''Subconfiguration'', and ''Vehicle configuration''.

The revisions read as follows:

§ 600.002 Definitions.

* * * * *

Carbon-related exhaust emissions (CREE) means the summation of the carbon-containing constituents of the exhaust emissions, with each constituent adjusted by a coefficient representing the carbon weight fraction of each constituent relative to the CO_2 carbon weight fraction, as specified in § 600.113.

* * * * *

Engine code means a unique combination, within a test group (as defined in § 86.1803 of this chapter), of displacement, fuel injection (or carburetion or other fuel delivery system), calibration, distributor calibration, choke calibration, auxiliary emission control devices, and other engine and emission control system components specified by the Administrator. For electric vehicles, *engine code* means a unique combination of manufacturer, electric traction motor, motor configuration, motor controller, and energy storage device.

* * * * *

Medium-duty passenger vehicle ($MDPV_{FE}$) means any motor vehicle rated at more than 8,500 pounds GVWR and less than 10,000 pounds GVWR that is designed primarily to transport passengers, but does not include a vehicle that—

(1) Is an ''incomplete truck,'' meaning any truck which does not have the primary load carrying device or container attached when it is first sold as a vehicle; or

(2) Has a seating capacity of more than 12 persons; or

(3) Is designed for more than 9 persons in seating rearward of the driver's seat; or

(4) Is equipped with an open cargo area (for example, a pick-up truck box or bed) of 72.0 inches in interior length or more. A covered box not readily accessible from the passenger compartment will be considered an open cargo area for purposes of this definition. (See paragraph (1) of the definition of medium-duty passenger vehicle at 40 CFR 86.1803–01).

* * * * *

Subconfiguration means a unique combination within a vehicle configuration of equivalent test weight, road-load horsepower, and any other operational characteristics or parameters which the Administrator determines may significantly affect fuel economy or CO_2 emissions within a vehicle configuration.

* * * * *

Vehicle configuration means a unique combination of basic engine, engine code, inertia weight class, transmission configuration, and axle ratio within a base level.

* * * * *

■ 48. Amend § 600.006 by revising paragraphs (c)(5), (e), and (g)(3)(ii) to read as follows:

§ 600.006 Data and information requirements for fuel economy data vehicles.

* * * * *

(c) * * *

(5) Starting with the 2012 model year, the data submitted according to paragraphs (c)(1) through (4) of this section shall include total HC, CO, CO_2, and, where applicable for alternative fuel vehicles, CH_3OH, C_2H_5OH, C_2H_4O, HCHO, NMHC and CH_4.

* * * * *

(e) In lieu of submitting actual data from a test vehicle, a manufacturer may provide fuel economy and CO_2 emission values derived from a previously tested vehicle, where the fuel economy and CO_2 emissions are expected to be equivalent (or less fuel-efficient and with higher CO_2 emissions). Additionally, in lieu of submitting actual data from a test vehicle, a manufacturer may provide fuel economy and CO_2 emission values derived from an analytical expression, *e.g.,* regression analysis. In order for fuel economy and CO_2 emission values derived from analytical methods to be accepted, the expression (form and coefficients) must have been approved by the Administrator.

* * * * *

(g) * * *

(3) * * *

(ii)(A) The manufacturer shall adjust all CO_2 test data generated by vehicles with engine-drive system combinations with more than 6,200 miles by using the following equation:

$ADJ_{4,000mi} = TEST[0.979 + 5.25 \cdot 10^{-6} \cdot (mi)]$

Where:

$ADJ_{4,000mi}$ = CO_2 emission data adjusted to 4,000-mile test point.

TEST = Tested emissions value of CO_2 in grams per mile.

mi = System miles accumulated at the start of the test rounded to the nearest whole mile.

(B) Emissions test values and results used and determined in the calculations in this paragraph (g)(3)(ii) shall be rounded in accordance with § 86.1837 of this chapter as applicable. Round results to the nearest gram per mile.

* * * * *

■ 49. Amend § 600.007 by revising paragraphs (b)(5) and (6), (c), and (f) introductory text to read as follows:

§ 600.007 Vehicle acceptability.

* * * * *

(b) * * *

(5) The calibration information submitted under § 600.006(b) must be representative of the vehicle configuration for which the fuel economy and CO_2 emission data were submitted.

(6) Any vehicle tested for fuel economy or CO_2 emissions must be representative of a vehicle which the manufacturer intends to produce under the provisions of a certificate of conformity.

* * * * *

(c) If, based on review of the information submitted under § 600.006(b), the Administrator determines that a fuel economy data vehicle meets the requirements of this section, the fuel economy data vehicle will be judged to be acceptable and fuel economy data from that fuel economy data vehicle will be reviewed pursuant to § 600.008.

* * * * *

(f) All vehicles used to generate fuel economy data, and for which emission standards apply, must be covered by a certificate of conformity under part 86 of this chapter before:

* * * * *

■ 50. Amend § 600.008 by revising the section heading and paragraph (a)(1)(ii) to read as follows:

§ 600.008 Review of fuel economy and CO_2 emission data, testing by the Administrator.

(a) * * *

(1) * * *

(ii) The evaluations, testing, and test data described in this section pertaining to fuel economy shall also be performed for CO_2 emissions, except that CO_2 emissions shall be arithmetically averaged instead of harmonically averaged, and in cases where the manufacturer selects the lowest of several fuel economy results to represent the vehicle, the manufacturer shall select the CO_2 emission value from the test results associated with the lowest selected fuel economy results.

* * * * *

■ 51. Amend § 600.010 by revising paragraphs (c)(1)(ii) and (d) to read as follows:

§ 600.010 Vehicle test requirements and minimum data requirements.

* * * * *

(c) * * *

(1) * * *

(ii)(A) FTP and HFET data from the highest projected model year sales subconfiguration within the highest projected model year sales vehicle configuration for each base level, and

(B) If required under § 600.115, for 2011 and later model year vehicles, US06, SC03 and cold temperature FTP data from the highest projected model year sales subconfiguration within the highest projected model year sales vehicle configuration for each base level. Manufacturers may optionally generate this data for any 2008 through 2010 model years, and, 2011 and later model year vehicles, if not otherwise required.

* * * * *

(d) *Minimum data requirements for the manufacturer's average fuel economy.* For the purpose of calculating the manufacturer's average fuel economy under § 600.510, the manufacturer shall submit FTP (city) and HFET (highway) test data representing at least 90 percent of the manufacturer's actual model year production, by vehicle configuration, for each category identified for calculation under § 600.510–08(a) or § 600.510–12(a)(1).

■ 52. Revise the heading of subpart B as set forth above.

■ 53. Amend § 600.101 by revising paragraph (a)(2) and removing and reserving paragraph (b)(2). The revision reads as follows:

§ 600.101 Testing overview.

* * * * *

(a) * * *

(2) Calculate fuel economy values for vehicle subconfigurations, configurations, base levels, and model types as described in §§ 600.206 and 600.208. Calculate fleet average values for fuel economy as described in § 600.510. Note that § 600.510(c) describes how to use CREE to determine fuel consumption improvement values for specific cases.

* * * * *

■ 54. Amend § 600.111–08 by revising paragraph (h) to read as follows:

§ 600.111–08 Test procedures.

* * * * *

(h) *Special test procedures.* We may allow or require you to use procedures other than those specified in this section as described in 40 CFR 1066.10(c). For example, special test procedures may be used for advanced technology vehicles, including, but not limited to fuel cell vehicles, hybrid electric vehicles using hydraulic energy storage, and vehicles equipped with hydrogen internal combustion engines. Additionally, we may conduct fuel economy and exhaust emission testing using the special test procedures approved for a specific vehicle.

■ 55. Amend § 600.113–12 by:

■ a. Revising the section heading, introductory text, and paragraph (g);

■ b. Removing and reserving paragraphs (h)(2), (i)(2), (j)(2), (k)(2), (l)(2), (m)(2);

■ c. Revising paragraph (n);

■ d. Removing and reserving paragraph (o)(2); and

■ e. Revising paragraph (p).

The revisions read as follows:

§ 600.113–12 Fuel economy and CO_2 emission calculations for FTP, HFET, US06, SC03 and cold temperature FTP tests.

The Administrator will use the calculation procedure set forth in this section for all official EPA testing of vehicles fueled with gasoline, diesel, alcohol-based or natural gas fuel. The calculations of the weighted fuel economy values require input of the weighted grams/mile values for total hydrocarbons (HC), carbon monoxide (CO), and carbon dioxide (CO_2); and, additionally for methanol-fueled automobiles, methanol (CH_3OH) and formaldehyde (HCHO); and, additionally for ethanol-fueled automobiles, methanol (CH_3OH), ethanol (C_2H_5OH), acetaldehyde (C_2H_4O), and formaldehyde (HCHO); and additionally for natural gas-fueled vehicles, non-methane hydrocarbons (NMHC) and methane (CH_4). Emissions shall be determined for the FTP, HFET, US06, SC03, and cold temperature FTP tests. Additionally, the specific gravity, carbon weight fraction and net heating value of the test fuel must be determined. The FTP, HFET, US06, SC03, and cold temperature FTP fuel economy values shall be calculated as specified in this section. An example

fuel economy calculation appears in appendix II to this part.

* * * * *

(g) Calculate separate FTP, highway, US06, SC03 and Cold temperature FTP fuel economy values from the grams/mile values for total HC, CO, CO_2 and, where applicable, CH_3OH, C_2H_5OH, C_2H_4O, HCHO, NMHC, N_2O, and CH_4, and the test fuel's specific gravity, carbon weight fraction, net heating value, and additionally for natural gas, the test fuel's composition.

(1) *Emission values for fuel economy calculations.* The emission values (obtained per paragraph (a) through (e) of this section, as applicable) used in the calculations of fuel economy in this section shall be rounded in accordance with § 86.1837 of this chapter. The CO_2 values (obtained per this section, as applicable) used in each calculation of fuel economy in this section shall be rounded to the nearest gram/mile.

(2) [Reserved]

(h)

(1) For gasoline-fueled automobiles tested on a test fuel specified in § 86.113 of this chapter, the fuel economy in miles per gallon is to be calculated using the following equation and rounded to the nearest 0.1 miles per gallon:

$$mpg = (5174 \times 10^4 \times CWF \times SG)/[((CWF \times HC) + (0.429 \times CO) + (0.273 \times CO_2)) \times ((0.6 \times SG \times NHV) + 5471)]$$

Where:

HC = Grams/mile HC as obtained in paragraph (g)(1) of this section.

CO = Grams/mile CO as obtained in paragraph (g)(1) of this section.

CO_2 = Grams/mile CO_2 as obtained in paragraph (g)(1) of this section.

CWF = Carbon weight fraction of test fuel as obtained in paragraph (f)(1) of this section and rounded according to paragraph (g)(3) of this section.

NHV = Net heating value by mass of test fuel as obtained in paragraph (f)(1) of this section and rounded according to paragraph (g)(3) of this section.

SG = Specific gravity of test fuel as obtained in paragraph (f)(1) of this section and rounded according to paragraph (g)(3) of this section.

(2) [Reserved]

(i)

(1) For diesel-fueled automobiles, calculate the fuel economy in miles per gallon of diesel fuel by dividing 2778 by the sum of three terms and rounding the quotient to the nearest 0.1 mile per gallon:

(i) (A) 0.866 multiplied by HC (in grams/miles as obtained in paragraph (g)(1) of this section), or

(B) Zero, in the case of cold FTP diesel tests for which HC was not collected, as permitted in § 600.113–08(c);

(ii) 0.429 multiplied by CO (in grams/mile as obtained in paragraph (g)(1) of this section); and

(iii) 0.273 multiplied by CO_2 (in grams/mile as obtained in paragraph (g)(1) of this section).

(2) [Reserved](j)

(1) For methanol-fueled automobiles and automobiles designed to operate on mixtures of gasoline and methanol, the fuel economy in miles per gallon of methanol is to be calculated using the following equation:

$$mpg = (CWF \times SG \times 3781.8)/((CWF_{exHC} \times HC) + (0.429 \times CO) + (0.273 \times CO_2) + (0.375 \times CH_3OH) + (0.400 \times HCHO))$$

Where:

CWF = Carbon weight fraction of the fuel as determined in paragraph (f)(2)(ii) of this section and rounded according to paragraph (g)(3) of this section.

SG = Specific gravity of the fuel as determined in paragraph (f)(2)(i) of this section and rounded according to paragraph (g)(3) of this section.

CWF_{exHC} = Carbon weight fraction of exhaust hydrocarbons = CWF as determined in paragraph (f)(2)(ii) of this section and rounded according to paragraph (g)(3) of this section (for M100 fuel, CWF_{exHC} = 0.866).

HC = Grams/mile HC as obtained in paragraph (g)(1) of this section.

CO = Grams/mile CO as obtained in paragraph (g)(1) of this section.

CO_2 = Grams/mile CO_2 as obtained in paragraph (g)(1) of this section.

CH_3OH = Grams/mile CH_3OH (methanol) as obtained in paragraph (g)(1) of this section.

HCHO = Grams/mile HCHO (formaldehyde) as obtained in paragraph (g)(1) of this section.

(2) [Reserved]

(k)

(1) For automobiles fueled with natural gas and automobiles designed to operate on gasoline and natural gas, the fuel economy in miles per gallon of natural gas is to be calculated using the following equation:

$$mpg_e = \frac{CWF_{HC/NG} \times D_{NG} \times 121.5}{(0.749 \times CH_4) + (CWF_{NMHC} \times NMHC) + (0.429 \times CO) + (0.273 \times (CO_2 - CO_{2NG}))}$$

Where:

mpg_e = miles per gasoline gallon equivalent of natural gas.

$CWF_{HC/NG}$ = carbon weight fraction based on the hydrocarbon constituents in the natural gas fuel as obtained in paragraph (f)(3) of this section and rounded according to paragraph (g)(3) of this section.

D_{NG} = density of the natural gas fuel [grams/ft^3 at 68 °F (20 °C) and 760 mm Hg (101.3 kPa)] pressure as obtained in paragraph (g)(3) of this section.

CH_4, NMHC, CO, and CO_2 = weighted mass exhaust emissions [grams/mile] for methane, non-methane HC, carbon monoxide, and carbon dioxide as obtained in paragraph (g)(2) of this section.

CWF_{NMHC} = carbon weight fraction of the non-methane HC constituents in the fuel as determined from the speciated fuel composition per paragraph (f)(3) of this section and rounded according to paragraph (g)(3) of this section.

CO_{2NG} = grams of carbon dioxide in the natural gas fuel consumed per mile of travel.

$CO_{2NG} = FC_{NG} \times D_{NG} \times WF_{CO2}$

Where:

$$FC_{NG} = \frac{(0.749 \times CH_4) + (CWF_{NMHC} \times NMHC) + (0.429 \times CO) + (0.273 \times CO_2)}{CWF_{NG} \times D_{NG}}$$

= cubic feet of natural gas fuel consumed per mile

Where:

CWF_{NG} = the carbon weight fraction of the natural gas fuel as calculated in paragraph (f)(3) of this section.

WF_{CO2} = weight fraction carbon dioxide of the natural gas fuel calculated using the mole fractions and molecular weights of the natural gas fuel constituents per

ASTM D 1945 (incorporated by reference in § 600.011).

(2) [Reserved]

(l)

(1) For ethanol-fueled automobiles and automobiles designed to operate on mixtures of gasoline and ethanol, the fuel economy in miles per gallon of ethanol is to be calculated using the following equation:

$mpg = (CWF \times SG \times 3781.8)/((CWF_{exHC} \times HC) + (0.429 \times CO) + (0.273 \times CO_2) + (0.375 \times CH_3OH) + (0.400 \times HCHO) + (0.521 \times C_2H_5OH) + (0.545 \times C_2H_4O))$

Where:

CWF = Carbon weight fraction of the fuel as determined in paragraph (f)(4) of this section and rounded according to paragraph (f)(3) of this section.

SG = Specific gravity of the fuel as determined in paragraph (f)(4) of this section and rounded according to paragraph (f)(3) of this section.

CWF_{exHC} = Carbon weight fraction of exhaust hydrocarbons = CWF as determined in paragraph (f)(4) of this section and rounded according to paragraph (f)(3) of this section.

HC = Grams/mile HC as obtained in paragraph (g)(1) of this section.

CO = Grams/mile CO as obtained in paragraph (g)(1) of this section.

CO_2 = Grams/mile CO_2 as obtained in paragraph (g)(1) of this section.

CH_3OH = Grams/mile CH_3OH (methanol) as obtained in paragraph (g)(1) of this section.

HCHO = Grams/mile HCHO (formaldehyde) as obtained in paragraph (g)(1) of this section.

C_2H_5OH = Grams/mile C_2H_5OH (ethanol) as obtained in paragraph (g)(1) of this section.

C_2H_4O = Grams/mile C_2H_4O (acetaldehyde) as obtained in paragraph (g)(1) of this section.

(2) [Reserved]

(m)

(1) For automobiles fueled with liquefied petroleum gas and automobiles designed to operate on gasoline and liquefied petroleum gas, the fuel economy in miles per gallon of liquefied petroleum gas is to be calculated using the following equation:

$$mpg_e = \frac{CWF_{fuel} \cdot SG_{fuel} \cdot 3781.8}{CWF_{HC} \cdot HC + 0.429 \cdot CO + 0.273 \cdot CO_2}$$

Where:

mpg_e = miles per gasoline gallon equivalent of liquefied petroleum gas.

CWF_{fuel} = carbon weight fraction based on the hydrocarbon constituents in the liquefied petroleum gas fuel as obtained in paragraph (f)(5) of this section and rounded according to paragraph (g)(3) of this section.

SG = Specific gravity of the fuel as determined in paragraph (f)(5) of this section and rounded according to paragraph (g)(3) of this section.

3781.8 = Grams of H_2O per gallon conversion factor.

CWF_{HC} = Carbon weight fraction of exhaust hydrocarbon = CWF_{fuel} as determined in paragraph (f)(4) of this section and rounded according to paragraph (f)(3) of this section.

HC = Grams/mile HC as obtained in paragraph (g)(2) of this section.

CO = Grams/mile CO as obtained in paragraph (g)(2) of this section.

CO_2 = Grams/mile CO_2 as obtained in paragraph (g)(2) of this section.

(2) [Reserved]

(n) Manufacturers may use a value of 0 grams CO_2 per mile to represent the emissions of electric vehicles and the electric operation of plug-in hybrid electric vehicles derived from electricity generated from sources that are not onboard the vehicle.

(o)

(1) For testing with E10, calculate fuel economy using the following equation, rounded to the nearest 0.1 miles per gallon:

$$FE_{[interval]} = \frac{(CMF_{testfuel} \cdot SG_{testfuel}) \cdot (\rho_{H2O} \cdot SG_{basefuel} \cdot NHC_{basefuel})}{[(CMF_{testfuel} \cdot NMOG) + (0.749 \cdot CH_4) + (0.429 \cdot CO) + (0.273 \cdot CO_2)] \cdot [(R_a \cdot SG_{testfuel} \cdot NHC_{testfuel}) + (SG_{basefuel} \cdot NHC_{basefuel} \cdot (1 - R_a))]}$$

Where:

$CMF_{testfuel}$ = carbon mass fraction of the test fuel, expressed to three decimal places.

$SG_{testfuel}$ = the specific gravity of the test fuel as obtained in paragraph (f)(1) of this section, expressed to three decimal places.

ρ_{H2O} = the density of pure water at 60 °F. Use ρ_{H2O} = 3781.69 g/gal.

$SG_{basefuel}$ = the specific gravity of the 1975 base fuel. Use $SG_{basefuel}$ = 0.7394.

$NHC_{basefuel}$ = net heat of combustion of the 1975 base fuel. Use $NHC_{basefuel}$ = 43.047 MJ/kg.

NMOG = NMOG emission rate over the test interval or duty cycle in grams/mile.

CH_4 = CH_4 emission rate over the test interval or duty cycle in grams/mile.

CO = CO emission rate over the test interval or duty cycle in grams/mile.

CO_2 = measured tailpipe CO_2 emission rate over the test interval or duty cycle in grams/mile.

R_a = sensitivity factor that represents the response of a typical vehicle's fuel economy to changes in fuel properties, such as volumetric energy content. Use R_a = 0.81.

$NHC_{testfuel}$ = net heat of combustion by mass of test fuel as obtained in paragraph (f)(1) of this section, expressed to three decimal places.

(2) [Reserved]

(p) Equations for fuels other than those specified in this section may be used with advance EPA approval. Alternate calculation methods for fuel economy may be used in lieu of the methods described in this section if shown to yield equivalent or superior results and if approved in advance by the Administrator.

■ 56. Amend § 600.114–12 by revising the section heading and introductory text to read as follows:

§ 600.114–12 Vehicle-specific 5-cycle fuel economy CO_2 emission calculations.

Paragraphs (a) through (f) of this section apply to data used for fuel economy labeling under subpart D of this part. Paragraphs (d) through (f) of this section are used to calculate 5-cycle carbon-related exhaust emission values for the purpose of determining optional credits for CO_2-reducing technologies under § 86.1869–12 of this chapter and to calculate 5-cycle CO_2 values for the purpose of fuel economy labeling under subpart D of this part.

* * * * *

■ 57. Amend § 600.116–12 by revising paragraphs (a)(11)(iii)(E), (c)(1) introductory text, and (c)(6)(iii) to read as follows:

§ 600.116–12 Special procedures related to electric vehicles and hybrid electric vehicles.

(a) * * *

(11) * * *

(iii) * * *

(E) A description of each test group and vehicle configuration that will use the 5-cycle adjustment factor, including the battery capacity of the vehicle used to generate the 5-cycle adjustment factor and the battery capacity of all the vehicle configurations to which it will be applied.

* * * * *

(c) Determine performance values for hybrid electric vehicles that have plug-in capability as specified in §§ 600.210 and 600.311 using the procedures of SAE J1711 (incorporated by reference in § 600.011), with the following clarifications and modifications:

(1) Calculate fuel economy values representing combined operation during charge-depleting and charge-sustaining operation using the following utility factors, except as otherwise specified in this paragraph (c):

* * * * *

(6) * * *

(iii) For charge-sustaining tests, we may approve alternate Net Energy Change/Fuel Ratio tolerances as specified in Appendix C of SAE J1711 to correct final fuel economy values and CO_2 emissions. For charge-sustaining tests, do not use alternate Net Energy Change/Fuel Ratio tolerances to correct emissions of criteria pollutants. Additionally, if we approve an alternate End-of-Test criterion or Net Energy Change/Fuel Ratio tolerances for a specific vehicle, we may use the alternate criterion or tolerances for any testing we conduct on that vehicle.

* * * * *

■ 58. Amend § 600.117 by removing and reserving paragraph (a)(5) and revising paragraphs (a)(6) and (b) to read as follows:

§ 600.117 Interim provisions.

(a) * * *

(6) Manufacturers may alternatively determine fuel economy values using E10 gasoline test fuel as specified in 40 CFR 1065.710(b). Calculate fuel economy using the equation specified in § 600.113–12(o)(1) based on measured CO_2 results without adjusting to account for fuel effects.

* * * * *

(b) For model years 2027 through 2029, manufacturers may determine fuel economy values using data with E0 test fuel from testing for earlier model years, subject to the carryover provisions of 40 CFR 86.1839 and § 600.006. Calculate fuel economy using the equation specified in § 600.113–12(h)(1) based on measured CO_2 results without adjusting to account for fuel effects.

* * * * *

■ 59. Amend § 600.206–12 by revising paragraphs (a) introductory text, (a)(4) introductory text, (b), and (c) to read as follows:

§ 600.206–12 Calculation and use of FTP-based and HFET-based fuel economy, CO_2 emissions, and carbon-related exhaust emission values for vehicle configurations.

(a) Fuel economy, CO_2 emissions, and carbon-related exhaust emissions values determined for each vehicle under § 600.113–12(a) and (b) and as approved in § 600.008(c), are used to determine FTP-based city, HFET-based highway, and combined FTP/Highway-based fuel economy, CO_2 emissions, and carbon-related exhaust emission values for each vehicle configuration for which data are available. Note that fuel economy for some alternative fuel vehicles may mean miles per gasoline gallon equivalent and/or miles per unit of fuel consumed. For example, electric vehicles will determine miles per kilowatt-hour in addition to miles per gasoline gallon equivalent, and fuel cell vehicles will determine miles per kilogram of hydrogen.

* * * * *

(4) For alcohol dual fuel automobiles and natural gas dual fuel automobiles the procedures of paragraphs (a)(1) or (2) of this section, as applicable, shall be used to calculate two separate sets of FTP-based city, HFET-based highway, and combined values for fuel economy, CO_2 emissions, and carbon-related exhaust emissions for each vehicle configuration.

* * * * *

(b) If only one equivalent petroleum-based fuel economy value exists for an electric vehicle configuration, that value, rounded to the nearest tenth of a mile per gallon, will comprise the petroleum-based fuel economy for that vehicle configuration.

(c) If more than one equivalent petroleum-based fuel economy value exists for an electric vehicle configuration, all values for that vehicle configuration are harmonically averaged and rounded to the nearest 0.0001 mile per gallon for that vehicle configuration.

■ 60. Amend § 600.207–12 by revising paragraphs (a)(1), (a)(4) introductory text, (b), and (c) to read as follows:

§ 600.207–12 Calculation and use of vehicle-specific 5-cycle-based fuel economy and CO_2 emission values for vehicle configurations.

(a) * * *

(1) If only one set of 5-cycle city and highway fuel economy and CO_2 emission values is accepted for a vehicle configuration, these values, where fuel economy is rounded to the nearest 0.0001 of a mile per gallon and the CO_2 emission value in grams per mile is rounded to the nearest tenth of a gram per mile, comprise the city and highway fuel economy and CO_2 emission values for that vehicle configuration. Note that the appropriate vehicle-specific CO_2 values for fuel economy labels based on 5-cycle testing with E10 test fuel are adjusted as described in § 600.114–12.

* * * * *

(4) For alcohol dual fuel automobiles and natural gas dual fuel automobiles, the procedures of paragraphs (a)(1) and (2) of this section shall be used to calculate two separate sets of 5-cycle city and highway fuel economy and CO_2 emission values for each vehicle configuration.

* * * * *

(b) If only one equivalent petroleum-based fuel economy value exists for an electric vehicle configuration, that value, rounded to the nearest tenth of a mile per gallon, will comprise the petroleum-based 5-cycle fuel economy for that vehicle configuration.

(c) If more than one equivalent petroleum-based 5-cycle fuel economy value exists for an electric vehicle configuration, all values for that vehicle configuration are harmonically averaged and rounded to the nearest 0.0001 mile per gallon for that vehicle configuration.

■ 61. Amend § 600.210–12 by revising paragraph (b) to read as follows:

§ 600.210–12 Calculation of fuel economy and CO_2 emission values for labeling.

* * * * *

(b) *Specific labels.* Except as specified in paragraphs (d) and (e) of this section, fuel economy and CO_2 emissions for specific labels may be determined by one of two methods. The first is based on vehicle-specific vehicle configuration 5-cycle data as determined in § 600.207. This method is available for all vehicles and is required for vehicles that do not qualify for the second method as described in § 600.115 (other than electric vehicles). The second method, the derived 5-cycle method, determines fuel economy and CO_2 emissions values from the FTP and HFET tests using equations that are derived from vehicle-specific 5-cycle vehicle configuration data, as determined in paragraph (b)(2) of this section. Manufacturers may voluntarily lower fuel economy values and raise CO_2 values if they determine that the label values from either method are not

representative of the fuel economy or CO_2 emissions for that model type.

(1) *Vehicle-specific 5-cycle labels.* The city and highway vehicle configuration fuel economy determined in § 600.207, rounded to the nearest mpg, and the city and highway vehicle configuration CO_2 emissions determined in § 600.207, rounded to the nearest gram per mile, comprise the fuel economy and CO_2 emission values for specific fuel economy labels, or, alternatively;

(2) *Derived 5-cycle labels.* Specific city and highway label values from derived 5-cycle are determined according to the following method:

(i)(A) Determine the derived five-cycle city fuel economy of the vehicle configuration using the equation below and coefficients determined by the Administrator:

$$Derived\ 5-cycle\ City\ Fuel\ Economy = \frac{1}{(City\ Intercept) + \frac{(City\ Slope)}{Config\ FTP\ FE}}$$

Where:

City Intercept = Intercept determined by the Administrator based on historic vehicle-specific 5-cycle city fuel economy data.

City Slope = Slope determined by the Administrator based on historic vehicle-specific 5-cycle city fuel economy data.

Config FTP FE = the vehicle configuration FTP-based city fuel economy determined under § 600.206, rounded to the nearest 0.0001 mpg.

(B) Determine the derived five-cycle city CO_2 emissions of the vehicle configuration using the equation below and coefficients determined by the Administrator:

Derived 5-cycle City CO_2 = City Intercept + City Slope · Config FTP CO_2

Where:

City Intercept = Intercept determined by the Administrator based on historic vehicle-specific 5-cycle city fuel economy data.

City Slope = Slope determined by the Administrator based on historic vehicle-specific 5-cycle city fuel economy data.

Config FTP CO_2 = the vehicle configuration FTP-based city CO_2 emissions determined under § 600.206, rounded to the nearest 0.1 grams per mile. Note that the appropriate Config FTP CO_2 input values for fuel economy labels based on testing with E10 test fuel are adjusted as referenced in § 600.206–12(a)(2)(iii).

(ii)(A) Determine the derived five-cycle highway fuel economy of the vehicle configuration using the equation below and coefficients determined by the Administrator:

$$Derived\ 5-cycle\ Highway\ Fuel\ Economy = \frac{1}{(Highway\ Intercept) + \frac{(Highway\ Slope)}{Config\ HFET\ FE}}$$

Where:

Highway Intercept = Intercept determined by the Administrator based on historic vehicle-specific 5-cycle highway fuel economy data.

Highway Slope = Slope determined by the Administrator based on historic vehicle-specific 5-cycle highway fuel economy data.

Config HFET FE = the vehicle configuration highway fuel economy determined under § 600.206, rounded to the nearest tenth.

(B) Determine the derived five-cycle highway CO_2 emissions of the vehicle configuration using the equation below and coefficients determined by the Administrator:

Derived 5-cycle city Highway CO_2 = Highway Intercept + Highway Slope · Config HFET CO_2

Where:

Highway Intercept = Intercept determined by the Administrator based on historic vehicle-specific 5-cycle highway fuel economy data.

Highway Slope = Slope determined by the Administrator based on historic vehicle-specific 5-cycle highway fuel economy data.

Config HFET CO_2 = the vehicle configuration highway fuel economy determined under § 600.206, rounded to the nearest tenth. Note that the appropriate Config HFET CO_2 input values for fuel economy labels based on testing with E10 test fuel are adjusted as referenced in § 600.206–12(a)(2)(iii).

(iii) The slopes and intercepts of paragraph (a)(2)(iii) of this section apply.

(3) *Specific alternative fuel economy and CO_2 emissions label values for dual fuel vehicles.*

(i) Determine an alternative fuel label value for dual fuel vehicles, rounded to the nearest whole number, as follows:

(A) Specific city and highway fuel economy label values for dual fuel alcohol-based and natural gas vehicles when using the alternative fuel are separately determined by the following calculation:

$$Derived\ FE_{alt} = FE_{alt} \times \frac{5\ cycle_{gas}}{FE_{gas}}$$

Where:

FE_{alt} = The unrounded FTP-based vehicle configuration city or HFET-based vehicle configuration highway fuel economy from the alternative fuel, as determined in § 600.206.

5cycle FE_{gas} = The unrounded vehicle-specific or derived 5-cycle vehicle configuration city or highway fuel economy as determined in paragraph (b)(1) or (2) of this section.

FE_{gas} = The unrounded FTP-based city or HFET-based vehicle configuration

highway fuel economy from gasoline, as determined in § 600.206.

(B) Specific city and highway CO_2 emission label values for dual fuel alcohol-based and natural gas vehicles when using the alternative fuel are separately determined by the following calculation:

$$Derived\ CO2_{alt} = CO2_{alt} \times \frac{5\ cycle\ CO2_{gas}}{CO2_{gas}}$$

Where:

$CO2_{alt}$ = The unrounded FTP-based vehicle configuration city or HFET-based vehicle configuration highway CO_2 emissions value from the alternative fuel, as determined in § 600.206.

5cycle $CO2_{gas}$ = The unrounded vehicle-specific or derived 5-cycle vehicle configuration city or highway CO_2 emissions value as determined in paragraph (b)(1) or (b)(2) of this section.

$CO2_{gas}$ = The unrounded FTP-based city or HFET-based vehicle configuration highway CO_2 emissions value from gasoline, as determined in § 600.206.

(ii) Optionally, if complete 5-cycle testing has been performed using the alternative fuel, the manufacturer may choose to use the alternative fuel label city or highway fuel economy and CO_2 emission values determined in § 600.207–12(a)(4)(ii), rounded to the nearest whole number.

(4) *Specific alternative fuel economy and CO_2 emissions label values for electric vehicles.* Determine FTP-based city and HFET-based highway fuel economy label values for electric vehicles as described in § 600.116. Determine these values by running the appropriate repeat test cycles. Convert W-hour/mile results to miles per kW-hr and miles per gasoline gallon equivalent. CO_2 label information is based on tailpipe emissions only, so CO_2 emissions from electric vehicles are assumed to be zero.

(5) *Specific alternate fuel economy and CO_2 emissions label values for fuel cell vehicles.* Determine FTP-based city and HFET-based highway fuel economy label values for fuel cell vehicles using procedures specified by the Administrator. Convert kilograms of hydrogen/mile results to miles per kilogram of hydrogen and miles per gasoline gallon equivalent. CO_2 label information is based on tailpipe emissions only, so CO_2 emissions from fuel cell vehicles are assumed to be zero.

* * * * *

■ 62. Revise the heading of subpart F as set forth above.

■ 63. Amend § 600.507–12 by revising paragraphs (a) introductory text, (b), and (d) to read as follows:

§ 600.507–12 Running change data requirements.

(a) Except as specified in paragraph (d) of this section, the manufacturer shall submit additional running change fuel economy data as specified in paragraph (b) of this section for any running change approved or implemented under § 86.1842 of this chapter, which:

* * * * *

(b)(1) The additional running change fuel economy data requirement in paragraph (a) of this section will be determined based on the sales of the vehicle configurations in the created or affected base level(s) as updated at the time of running change approval.

(2) Within each newly created base level as specified in paragraph (a)(1) of this section, the manufacturer shall submit data from the highest projected total model year sales subconfiguration within the highest projected total model year sales vehicle configuration in the base level.

(3) Within each base level affected by a running change as specified in paragraph (a)(2) of this section, fuel economy data shall be submitted for the vehicle configuration created or affected by the running change which has the highest total model year projected sales. The test vehicle shall be of the subconfiguration created by the running change which has the highest projected total model year sales within the applicable vehicle configuration.

* * * * *

(d) For those model types created under § 600.208–12(a)(2), the manufacturer shall submit fuel economy data for each subconfiguration added by a running change.

■ 64. Revise § 600.509–12 to read as follows:

§ 600.509–12 Voluntary submission of additional data.

(a) The manufacturer may optionally submit data in addition to the data required by the Administrator.

(b) Additional fuel economy data may be submitted by the manufacturer for any vehicle configuration which is to be tested as required in § 600.507 or for which fuel economy data were previously submitted under paragraph (c) of this section.

(c) Within a base level, additional fuel economy data may be submitted by the manufacturer for any vehicle configuration which is not required to be tested by § 600.507.

■ 65. Amend § 600.510–12 by:

■ a. Revising the section heading;

■ b. Removing and reserving paragraph (a)(2);

■ c. Revising paragraphs (b) and (g)(1) introductory text; and

■ d. Removing paragraphs (i), (j), and (k).

The revisions read as follows:

§ 600.510–12 Calculation of average fuel economy.

* * * * *

(b) For the purpose of calculating average fuel economy under paragraph (c) of this section:

(1) All fuel economy data submitted in accordance with § 600.006(e) or § 600.512(c) shall be used.

(2) The combined city/highway fuel economy values will be calculated for each model type in accordance with § 600.208 except that:

(i) Separate fuel economy values will be calculated for model types and base levels associated with car lines for each category of passenger automobiles and light trucks as determined by the Secretary of Transportation pursuant to paragraph (a)(1) of this section.

(ii) Total model year production data, as required by this subpart, will be used instead of sales projections;

(iii) [Reserved]

(iv) The fuel economy value will be rounded to the nearest 0.1 mpg; and

(v) [Reserved]

(vi) At the manufacturer's option, those vehicle configurations that are self-compensating to altitude changes may be separated by sales into high-altitude sales categories and low-altitude sales categories. These separate sales categories may then be treated (only for the purpose of this section) as separate vehicle configurations in accordance with the procedure of § 600.208–12(a)(4)(ii).

(3) The fuel economy values for each vehicle configuration are the combined fuel economy calculated according to § 600.206–12(a)(3) except that:

(i) Separate fuel economy values will be calculated for vehicle configurations

associated with car lines for each category of passenger automobiles and light trucks as determined by the Secretary of Transportation pursuant to paragraph (a)(1) of this section; and

(ii) Total model year production data, as required by this subpart will be used instead of sales projections.

* * * * *

(g)(1) Dual fuel automobiles must provide equal or greater energy efficiency while operating on the alternative fuel as while operating on gasoline or diesel fuel to obtain the CAFE credit determined in paragraphs (c)(2)(iv) and (v) of this section. The following equation must hold true:

* * * * *

■ 66. Amend § 600.512–12 by:
■ a. Revising paragraph (a) introductory text;
■ b. Removing and reserving paragraph (a)(2), (c)(1)(ii), and (c)(2)(ii);
■ c. Revising paragraphs (c)(3);
■ d. Removing and reserving paragraphs (c)(4)(ii), and (c)(5)(ii); and
■ e. Removing paragraph (c)(11).

The revisions read as follows:

§ 600.512–12 Model year report.

(a) For each model year, the manufacturer shall submit to the Administrator a report, known as the model year report, containing all information necessary for the calculation of the manufacturer's average fuel economy.

(c) * * *

(3)(i) For manufacturers calculating air conditioning efficiency credits in support of fuel consumption improvement values under § 600.510(c), a description of the air conditioning system and the total credits earned for each averaging set, model year, and region, as applicable.

(ii) Any additional fuel economy data submitted by the manufacturer under § 600.509;

* * * * *

§ 600.514–12 [Removed]

■ 67. Remove § 600.514–12.

PART 1036—CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES

■ 68. The authority citation for part 1036 continues to read as follows:

Authority: 42 U.S.C. 7401—7671q.

■ 69. Amend § 1036.1 by revising paragraph (a) introductory text to read as follows:

§ 1036.1 Applicability.

(a) Except as specified in § 1036.5, the provisions of this part apply for engines that will be installed in heavy-duty vehicles (including glider vehicles). Heavy-duty engines produced before December 20, 2026 are subject to exhaust emission standards for NO_X, HC, PM, and CO, and related provisions under 40 CFR part 86, subpart A and subpart N, instead of this part, except as follows:

* * * * *

■ 70. Amend § 1036.5 by revising paragraph (a) and removing paragraph (e). The revision reads as follows:

§ 1036.5 Excluded engines.

(a) The provisions of this part do not apply to engines used in medium-duty passenger vehicles or other heavy-duty vehicles that are subject to regulation under 40 CFR part 86, subpart S, except as specified in 40 CFR part 86, subpart S. For example, this exclusion may apply for engines used in incomplete vehicles or high-GCWR vehicles as specified in 40 CFR 86.1801–12.

* * * * *

■ 71. Amend § 1036.15 by revising paragraph (b) to read as follows:

§ 1036.15 Other applicable regulations.

* * * * *

(b) Part 1037 of this chapter describes emission standards and other requirements for heavy-duty vehicles, whether or not they use engines certified under this part.

* * * * *

■ 72. Amend § 1036.101 by revising paragraph (a) to read as follows:

§ 1036.101 Overview of exhaust emission standards.

(a) You must show that engines meet the criteria pollutant standards for NO_X, HC, PM, and CO as described in § 1036.104. These pollutants are sometimes described collectively as ''criteria pollutants'' because they are either criteria pollutants under the Clean Air Act or precursors to the criteria pollutants ozone and PM.

* * * * *

§ 1036.108 [Removed]

■ 73. Remove § 1036.108.

§ 1036.115 [Amended]

■ 74. Amend § 1036.115 by removing and reserving paragraph (b).

■ 75. Amend § 1036.130 by revising paragraph (b)(5) and removing and reserving paragraph (c). The revision reads as follows:

§ 1036.130 Installation instructions for vehicle manufacturers.

* * * * *

(b) * * *

(5) Describe how your certification is limited for any type of application. For example, if you certify engines only for use in emergency vehicles, you must make clear that the engine may only be installed in emergency vehicles.

* * * * *

■ 76. Amend § 1036.135 by revising paragraphs (c)(9) and (e) to read as follows:

§ 1036.135 Labeling.

* * * * *

(c) * * *

(9) Identify any limitations on your certification. For example, if you certify engines with one or more approved AECDs for emergency vehicle applications under § 1036.115(h)(4), include the statement: ''THIS ENGINE IS FOR INSTALLATION IN EMERGENCY VEHICLES ONLY''.

* * * * *

(e) You may ask us to approve modified labeling requirements in this part if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the requirements of this part.

* * * * *

■ 77. Amend § 1036.150 by:
■ a. Removing and reserving paragraphs (b), (d), and (e);
■ b. Revising paragraph (f);
■ c. Removing and reserving paragraphs (g) through (j), (l) through (n), (p) through (s), and (w); and
■ d. Removing paragraph (aa).

The revision reads as follows:

§ 1036.150 Interim provisions.

* * * * *

(f) *Testing exemption for hydrogen engines.* Tailpipe HC, and CO emissions from engines fueled with neat hydrogen are deemed to comply with the applicable standard. Testing for HC or CO is optional under this part for these engines.

* * * * *

■ 78. Amend § 1036.205 by revising paragraphs (b) introductory text, (l), (m), (o)(2), and (t) and removing paragraph (aa). The revisions read as follows:

§ 1036.205 Requirements for an application for certification.

* * * * *

(b) Explain how the emission control system operates. Describe in detail all system components for controlling criteria pollutant emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECDs any devices that

modulate or activate differently from each other. Include all the following:

* * * * *

(l) Identify the duty-cycle emission standards from § 1036.104(a) and (b) that apply for the engine family. Also identify the NO_X FEL over the FTP for the engine family.

(m) Identify the engine family's deterioration factors and describe how you developed them (see § 1036.240). Present any test data you used for this. For engines designed to discharge crankcase emissions to the ambient atmosphere, use the deterioration factors for crankcase emission to determine deteriorated crankcase emission levels of NO_X, HC, PM, and CO as specified in § 1036.240(e).

* * * * *

(o) * * *

(2) Identify the value of e_{CO2FTP} from § 1036.235(b).

* * * * *

(t) State whether your certification is limited for certain engines. For example, you might certify engines only for use in emergency vehicles or in vehicles with hybrid powertrains. If this is the case, describe how you will prevent use of these engines in vehicles for which they are not certified.

* * * * *

■ 79. Amend § 1036.225 by removing paragraph (a)(3) and revising paragraph (f). The revision reads as follows:

§ 1036.225 Amending applications for certification.

* * * * *

(f) You may ask us to approve a change to your FEL in certain cases after the start of production, but before the end of the model year. The changed FEL may not apply to engines you have already introduced into U.S. commerce, except as described in this paragraph (f). You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

(2) You may ask to lower the FEL for your engine family only if you have test data from production engines showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines you produce after we approve the new FEL. Use the appropriate FEL with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

* * * * *

§ 1036.230 [Amended]

■ 80. Amend § 1036.230 by removing paragraph (f).

■ 81. Add § 1036.231 to subpart C to read as follows:

§ 1036.231 Powertrain families.

(a) If you choose to perform powertrain testing as specified in § 1036.545, use good engineering judgment to divide your product line into powertrain families that are expected to have similar criteria emissions throughout the useful life as described in this section. Your powertrain family is limited to a single model year.

(b) Except as specified in paragraph (c) of this section, group powertrains in the same powertrain family if they share all the following attributes:

(1) Have the same engine design aspects as specified in § 1036.230.

(2) [Reserved]

(3) Number of clutches.

(4) Type of clutch (*e.g.,* wet or dry).

(5) Presence and location of a fluid coupling such as a torque converter.

(6) Gear configuration, as follows:

(i) Planetary (*e.g.,* simple, compound, meshed-planet, stepped-planet, multi-stage).

(ii) Countershaft (*e.g.,* single, double, triple).

(iii) Continuously variable (*e.g.,* pulley, magnetic, toroidal).

(7) Number of available forward gears, and transmission gear ratio for each available forward gear, if applicable. Count forward gears as being available only if the vehicle has the hardware and software to allow operation in those gears.

(8) Transmission oil sump configuration (*e.g.,* conventional or dry).

(9) The power transfer configuration of any hybrid technology (*e.g.,* series or parallel).

(10) The type of any RESS (*e.g.,* hydraulic accumulator, Lithium-ion battery pack, ultracapacitor bank).

(c) For powertrains that share all the attributes described in paragraph (b) of this section, divide them further into separate powertrain families based on common calibration attributes. Group powertrains in the same powertrain family to the extent that powertrain test results and corresponding emission levels are expected to be similar throughout the useful life.

(d) You may subdivide a group of powertrains with shared attributes under paragraph (b) of this section into different powertrain families.

(e) In unusual circumstances, you may group powertrains into the same powertrain family even if they do not have shared attributes under in paragraph (b) of this section if you show that their emission characteristics throughout the useful life will be similar.

(f) If you include the axle when performing powertrain testing for the family, you must limit the family to include only those axles represented by the test results. You may include multiple axle ratios in the family if you test with the axle expected to produce the highest emission results.

■ 82. Amend § 1036.235 by revising the introductory text and paragraphs (a) and (b) and removing and reserving paragraph (c)(5). The revisions read as follows:

§ 1036.235 Testing requirements for certification.

This section describes the emission testing you must perform to show compliance with the emission standards in § 1036.104.

(a) Select and configure one or two emission-data engines from each engine family.

(1) For criteria pollutant emission testing, select the engine configuration with the highest volume of fuel injected per cylinder per combustion cycle at the point of maximum torque—unless good engineering judgment indicates that a different engine configuration is more likely to exceed (or have emissions nearer to) an applicable emission standard or FEL. If two or more engines have the same fueling rate at maximum torque, select the one with the highest fueling rate at rated speed. In making this selection, consider all factors expected to affect emission-control performance and compliance with the standards, including emission levels of all exhaust constituents, especially NO_X and PM. To the extent we allow it for establishing deterioration factors, select for testing those engine components or subsystems whose deterioration best represents the deterioration of in-use engines.

(2) In the case of powertrain testing under § 1036.545, select a test engine, test hybrid components, test axle and test transmission as applicable, by considering the whole range of vehicle models covered by the powertrain family. If the powertrain has more than one transmission calibration, for example economy vs. performance, you may weight the results from the powertrain testing in § 1036.545 by the percentage of vehicles in the family by prior model year for each configuration. This can be done, for example, through

the use of survey data or based on the previous model year's sales volume. Weight the results of $M_{fuel[cycle]}$, $f_{npowertrain}/v_{powertrain}$, and $W_{[cycle]}$ from table 5 to paragraph (o)(8)(i) of § 1036.545 according to the percentage of vehicles in the family that use each transmission calibration.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part. In the case of dual-fuel and flexible-fuel engines, measure emissions when operating with each type of fuel for which you intend to certify the engine. For criteria pollutant emission testing, measure NO_X, PM, CO, and NMHC emissions using each duty cycle specified in § 1036.104. Determine brake-specific CO_2 emissions over the FTP, e_{CO2FTP}, as a reference value for calculating emission rates from in-use engines under § 1036.530, as applicable. You may alternatively determine e_{CO2FTP}, based on brake-specific CO_2 emissions over the SET, with our advance approval, if you demonstrate that engines from the engine family will be used only with tractors.

* * * * *

§ 1036.241 [Removed]

■ 83. Remove § 1036.241.

■ 84. Amend § 1036.245 by revising paragraph (c)(3) to read as follows:

§ 1036.245 Deterioration factors for exhaust emission standards.

* * * * *

(c) * * *

(3) Perform service accumulation in the laboratory by operating the engine or hybrid powertrain repeatedly over one of the following test sequence, or a different test sequence that we approve in advance:

(i) Operate at idle for 2 hours.

(ii) Operate for 105 ± 1 hours over a repeat sequence of one FTP followed by one RMC.

(iii) Operate over one LLC.

(iv) Operate at idle for 2 hours.

(v) Shut down the engine for cooldown to ambient temperature.

* * * * *

■ 85. Revise § 1036.301 to read as follows:

§ 1036.301 Selective enforcement audits.

Selective enforcement audits apply for engines and powertrains as specified in 40 CFR part 1068, subpart E.

■ 86. Amend § 1036.415 by revising paragraph (g) to read as follows:

§ 1036.415 Preparing and testing engines.

* * * * *

(g) For stop-start and automatic engine shutdown systems, override idle-reduction features if they are adjustable. If those systems are not adjustable,, set the 1-Hz emission rate to zero for all regulated pollutants when the idle-reduction feature is active. Do not exclude these data points under § 1036.530(c)(3)(ii). Note that systems are considered ''adjustable'' if vehicle owners, dealers, or other service outlets can override the idle-reduction features.

■ 87. Amend § 1036.501 by revising paragraphs (a), (d), and (h) to read as follows:

§ 1036.501 General testing provisions.

(a) Use the equipment and procedures specified in this subpart and 40 CFR part 1065 to determine whether engines meet the emission standards in § 1036.104.

* * * * *

(d) If your engine is intended for installation in a vehicle equipped with nonadjustable stop-start technology as described in § 1036.415(g), you may shut the engine down during idle portions of the duty cycle to represent in-use operation. We recommend installing a production engine starter motor and letting the engine's ECM manipulate the starter motor to control the engine stop and start events. Use good engineering judgment to address the effects of dynamometer inertia on restarting the engine by, for example, using a larger starter motor or declutching the engine from the dynamometer during restart.

* * * * *

(h) For testing engines that use regenerative braking through the crankshaft only to power an electric heater for aftertreatment devices, you may use the nonhybrid engine testing procedures in §§ 1036.510, 1036.512, and 1036.514 only if the recovered energy is less than 10 percent of the total positive work for each applicable test interval. Otherwise, use powertrain testing procedures specified for hybrid powertrains to measure emissions. For engines that power an electric heater with a battery, you must meet the requirements related to charge-sustaining operation as described in 40 CFR 1066.501(a)(3).

§ 1036.505 [Removed]

■ 88. Remove § 1036.505.

■ 89. Amend § 1036.510 by:

■ a. Revising paragraphs (b)(2) introductory text and (b)(2)(vii) and (viii); and

■ b. Removing and reserving paragraph (e).

The revisions read as follows:

§ 1036.510 Supplemental Emission Test.

* * * * *

(b) * * *

(2) Test hybrid powertrains as described in § 1036.545, except as specified in this paragraph (b)(2). Do not compensate the duty cycle for the distance driven as described in § 1036.545(g)(4). For hybrid engines, select the transmission model parameters as described in § 1036.510(b)(viii), . Disregard duty cycles in § 1036.545(j). For cycles that begin with idle, leave the transmission in neutral or park for the full initial idle segment. Place the transmission into drive no earlier than 5 seconds before the first nonzero vehicle speed setpoint. For SET testing only, place the transmission into park or neutral when the cycle reaches the final idle segment. Use the following vehicle parameters instead of those in § 1036.545 to define the vehicle model in § 1036.545(a)(3):

* * * * *

(vii) Select a combination of drive axle ratio, k_a, and a tire radius, *r,* that represents the worst-case combination of top gear ratio, drive axle ratio, and tire size for emissions expected for vehicles in which the hybrid engine or hybrid powertrain will be installed. This is typically the highest axle ratio and smallest tire radius. Disregard configurations or settings corresponding to a maximum vehicle speed below 60 mi/hr in selecting a drive axle ratio and tire radius, unless you can demonstrate that in-use vehicles will not exceed that speed. You may request preliminary approval for selected drive axle ratio and tire radius consistent with the provisions of § 1036.210. If the hybrid engine or hybrid powertrain is used exclusively in vehicles not capable of reaching 60 mi/hr, you may request that we approve an alternate test cycle and cycle-validation criteria as described in 40 CFR 1066.425(b)(5). Note that hybrid engines rely on a specified transmission that is different for each duty cycle; the transmission's top gear ratio therefore depends on the duty cycle, which will in turn change the selection of the drive axle ratio and tire size. For example, § 1036.520 prescribes a different top gear ratio than this paragraph (b)(2).

(viii) If you are certifying a hybrid engine, use a default transmission efficiency of 0.95 and create the vehicle model along with its default transmission shift strategy as described in § 1036.545(a)(3)(ii). Specify the transmission type as Automatic Transmission for all engines and for all duty cycles, except that the transmission type is Automated Manual Transmission for Heavy HDE operating over the SET duty cycle. For automatic transmissions set neutral idle to ''Y'' in

the vehicle file. Select gear ratios for each gear as shown in the following table:

TABLE 1 TO PARAGRAPH (b)(2)(vii) OF § 1036.510—GEM HIL INPUT FOR GEAR RATIO

Gear number	Spark-ignition HDE, light HDE, and medium HDE—all duty cycles	Heavy HDE—LLC and FTP duty cycles	Heavy HDE—SET duty cycle
1	3.10	3.51	12.8
2	1.81	1.91	9.25
3	1.41	1.43	6.76
4	1.00	1.00	4.90
5	0.71	0.74	3.58
6	0.61	0.64	2.61
7	.....	.....	1.89
8	.....	.....	1.38
9	.....	.....	1.00
10	.....	.....	0.73
Lockup Gear	3	3	.....

* * * * *

■ 90. Amend § 1036.512 by revising paragraphs (b)(2)(iv) and removing and reserving paragraph (e). The revision reads as follows:

§ 1036.512 Federal Test Procedure.

* * * * *

(b) * * *

(2) * * *

(iv) For plug-in hybrid powertrains, test over the FTP in both charge-sustaining and charge-depleting operation for criteria pollutant determination.

* * * * *

■ 91. Amend § 1036.514 by revising paragraph (b)(4) to read as follows:

§ 1036.514 Low Load Cycle.

* * * * *

(b) * * *

(4) Adjust procedures in this section as described in § 1036.510(d) and (e) for plug-in hybrid powertrains to determine criteria pollutant emissions, replacing ''SET'' with ''LLC''. Note that the LLC is therefore the preconditioning duty cycle for plug-in hybrid powertrains.

* * * * *

■ 92. Amend § 1036.520 by revising paragraph (b)(1) to read as follows:

§ 1036.520 Determining power and vehicle speed values for powertrain testing.

* * * * *

(b) * * *

(1) Use vehicle parameters, other than power, as specified in § 1036.510(b)(2). Use the applicable automatic transmission as specified in § 1036.510(b)(2)(vii).

* * * * *

■ 93. Amend § 1036.530 by revising paragraphs (e) and (g) to read as follows:

§ 1036.530 Test procedures for off-cycle testing.

* * * * *

(e) *Normalized CO_2 emission mass over a 300 second test interval.* For engines subject to compression-ignition standards, determine the normalized CO_2 emission mass over each 300 second test interval, $m_{CO2,norm,testinterval,}$ to the nearest 0.01% using the following equation:

$$m_{CO2,norm,testinterval} = \frac{m_{CO2,testinterval}}{e_{CO2FTP} \cdot P_{max} \cdot t_{testinterval}}$$

Eq. 1036.530–2

Where:

$m_{CO2,testinterval}$ = total CO_2 emission mass over the test interval.

e_{CO2FTP} = the engine's brake-specific CO_2 over the FTP duty cycle, as described in § 1036.235(b).

P_{max} = the highest value of rated power for all the configurations included in the engine family.

$t_{testinterval}$ = duration of the test interval. Note that the nominal value is 300 seconds.

Example

$m_{CO2,testinterval}$ = 3948 g
e_{CO2FTP} = 428.2 g/hp·hr
P_{max} = 406.5 hp
$t_{testinterval}$ = 300.01 s = 0.08 hr

$$m_{CO2,norm,testinterval} = \frac{3948}{428.2 \cdot 406.5 \cdot 0.08}$$

$m_{CO2,norm,testinterval}$ = 0.2722 = 27.22%

* * * * *

(g) *Off-cycle emissions quantities.* Determine the off-cycle emissions quantities as follows:

(1) *Spark-ignition.* For engines subject to spark-ignition standards, the off-cycle emission quantity, $e_{[emission],offcycle,}$ is the value for CO_2-specific emission mass for a given pollutant over the test interval representing the shift-day converted to a brake-specific value, as calculated for each measured pollutant using the following equation:

$$e_{[emissions],offcycle} = \frac{m_{[emission]}}{m_{CO2}} \cdot e_{CO2,FTP}$$

Eq. 1036.530–3

Where:

$m_{[emission]}$ = total emission mass for a given pollutant over the test interval as determined in paragraph (d)(2) of this section.

m_{CO2} = total CO_2 emission mass over the test interval as determined in paragraph (d)(2) of this section.

$e_{CO2,FTP}$ = the engine's brake-specific CO_2 over the FTP duty cycle.

Example

m_{NO_X} = 1.337 g
m_{CO2} = 18778 g
$e_{CO2,FTP}$ = 505.1 g/hp·hr

$$e_{NOx,offcycle} = \frac{1.337}{18778} \cdot 505.1$$

$e\mathrm{NO_{X,\ offcycle}}$ = 0.035 g/hp·hr = 35 mg/hp·hr

(2) *Compression-ignition.* For engines subject to compression-ignition standards, determine the off-cycle emission quantity for each bin. When calculating mean bin emissions from ten engines to apply the pass criteria for engine families in § 1036.425(c), set any negative off-cycle emissions quantity to zero before calculating mean bin emissions.

(i) *Off-cycle emissions quantity for bin 1.* The off-cycle emission quantity for bin 1, is the mean NO_X mass emission rate from all test intervals associated with bin 1 as calculated using the following equation:

$$\dot{\overline{m}}_{NOx,offcycle,bin1} = \frac{\sum_{i=1}^{N} m_{NOx,testinterval,i}}{\sum_{i=1}^{N} t_{testinterval,i}}$$

Eq. 1036.530–4

Where:

i = an indexing variable that represents one 300 second test interval.

N = total number of 300 second test intervals in bin 1.

$m_{NOxtestinterval,i}$ = total NO_X emission mass over the test interval i in bin 1 as determined in paragraph (d)(2) of this section.

$t_{testinterval,i}$ = total time of test interval i in bin 1 as determined in paragraph (d)(1) of this section. Note that the nominal value is 300 seconds.

Example

N = 10114
$m_{NOx,testinterval,1}$ = 0.021 g
$m_{NOx,testinterval,2}$ = 0.025 g
$m_{NOx,testinterval,3}$ = 0.031 g
$t_{testinterval,1}$ = 299.99 s
$t_{testinterval,2}$ = 299.98 s
$t_{testinterval,3}$ = 300.04 s

$$\dot{\overline{m}}_{NOx,offcycle,bin1} = \frac{\left(0.021 + 0.025 + 0.031\ldots + m_{NOx,testinterval,10114}\right)}{\left(299.99 + 299.98 + 300.04\ldots + t_{testinterval,10114}\right)}$$

$\dot{\overline{m}}$ = 0.000285 g/s = 1.026 g/hr

(ii) *Off-cycle emissions quantity for bin 2.* The off-cycle emission quantity for bin 2, $e_{[emission],offcycle,bin2,}$ is the value for CO_2-specific emission mass for a given pollutant of all the 300 second test intervals in bin 2 combined and converted to a brake-specific value, as calculated for each measured pollutant using the following equation:

$$e_{[emissions],offcycle,bin2} = \frac{\sum_{i=1}^{N} m_{[emission],testinterval,i}}{\sum_{i=1}^{N} m_{CO2,testinterval,i}} \cdot e_{CO2,FTP}$$

Eq. 1036.530–5

Where:

i = an indexing variable that represents one 300 second test interval.

N = total number of 300 second test intervals in bin 2.

$m_{[emission],testinterval,i}$ = total emission mass for a given pollutant over the test interval i in bin 2 as determined in paragraph (d)(2) of this section.

$m_{CO2,testinterval,i}$ = total CO_2 emission mass over the test interval i in bin 2 as determined in paragraph (d)(2) of this section.

$e_{CO2,FTP}$ = the engine's brake-specific CO_2 over the FTP duty cycle.

Example

N = 15439
m_{NOx1} = 0.546 g
m_{NOx2} = 0.549 g
m_{NOx3} = 0.556 g
$m_{CO2,1}$ = 10950.2 g
$m_{CO2,2}$ = 10961.3 g
$m_{CO2,3}$ = 10965.3 g
$e_{CO2,FTP}$ = 428.1 g/hp·hr

$$e_{NOx,offcycle,bin2} = \frac{\left(0.546 + 0.549 + 0.556\ldots + m_{NOx,testinterval,15439}\right)}{\left(10950.2 + 10961.3 + 10965.3\ldots + m_{CO2,testinterval,15439}\right)} \cdot 428.1$$

$e_{NOx,offcycle,bin2}$ = 0.026 g/hp·hr = 26 mg/hp·hr
* * * * *

§§ 1036.535, 1036.540, and 1036.543 [Removed]

■ 94. Remove §§ 1036.535, 1036.540, and 1036.543.

■ 95. Revise and republish § 1036.545 to read as follows:

§ 1036.545 Powertrain testing.

This section describes the procedure to test a powertrain that includes an engine coupled with a transmission, drive axle, and hybrid components or any assembly with one or more of those hardware elements. The powertrain test procedure is one option for certifying hybrid powertrains to the engine standards in § 1036.104.

(a) *General test provisions.* The following provisions apply broadly for testing under this section:

(1) [Reserved]

(2) The procedures of 40 CFR part 1065 apply for testing in this section except as specified. This section uses engine parameters and variables that are consistent with 40 CFR part 1065.

(3) Powertrain testing depends on models to calculate certain parameters. You can use the detailed equations in this section to create your own models, or use the GEM HIL model contained within GEM Phase 2, Version 4.0 (incorporated by reference, see § 1036.810) to simulate vehicle hardware elements as follows:

(i) Create driveline and vehicle models that calculate the angular speed setpoint for the test cell dynamometer, $f_{nref,dyno,}$ based on the torque measurement location. Use the detailed equations in paragraph (f) of this section, the GEM HIL model's driveline and vehicle submodels, or a combination of the equations and the submodels. You may use the GEM HIL model's transmission submodel in paragraph (f) to simulate a transmission only if testing hybrid engines. For hybrid engines intended for vehicles with automatic transmissions, update the driver_in_gear signal within the driver interface block in the GEM HIL model with the transmission state (in-gear or idle) as a function of time as defined by the duty cycles in this part.

(ii) Create a driver model or use the GEM HIL model's driver submodel to simulate a human driver modulating the throttle and brake pedals to follow the test cycle as closely as possible.

(iii) Create a cycle-interpolation model or use the GEM HIL model's cycle submodel to interpolate the duty-cycles and feed the driver model the duty-cycle reference vehicle speed for each point in the duty-cycle.

(4) The powertrain test procedure in this section is designed to simulate operation of different vehicle configurations over specific duty cycles. See paragraph (j) of this section.

(5) [Reserved]

(6) For hybrid powertrains with no plug-in capability, correct for the net energy change of the energy storage device as described in 40 CFR 1066.501(a)(3). For plug-in hybrid electric powertrains, follow 40 CFR 1066.501(a)(3) to determine End-of-Test for charge-depleting operation.

(7) through (8) [Reserved]

(9) If you test a powertrain over the Low Load Cycle specified in § 1036.514, control and apply the electrical accessory loads. We recommend using a load bank connected directly to the powertrain's electrical system. You may instead use an alternator with dynamic electrical load control. Use good engineering judgment to account for the efficiency of the alternator or the efficiency of the powertrain to convert the mechanical energy to electrical energy.

(10) The following instruments are required with plug-in hybrid systems to determine required voltages and currents during testing and must be installed on the powertrain to measure these values during testing:

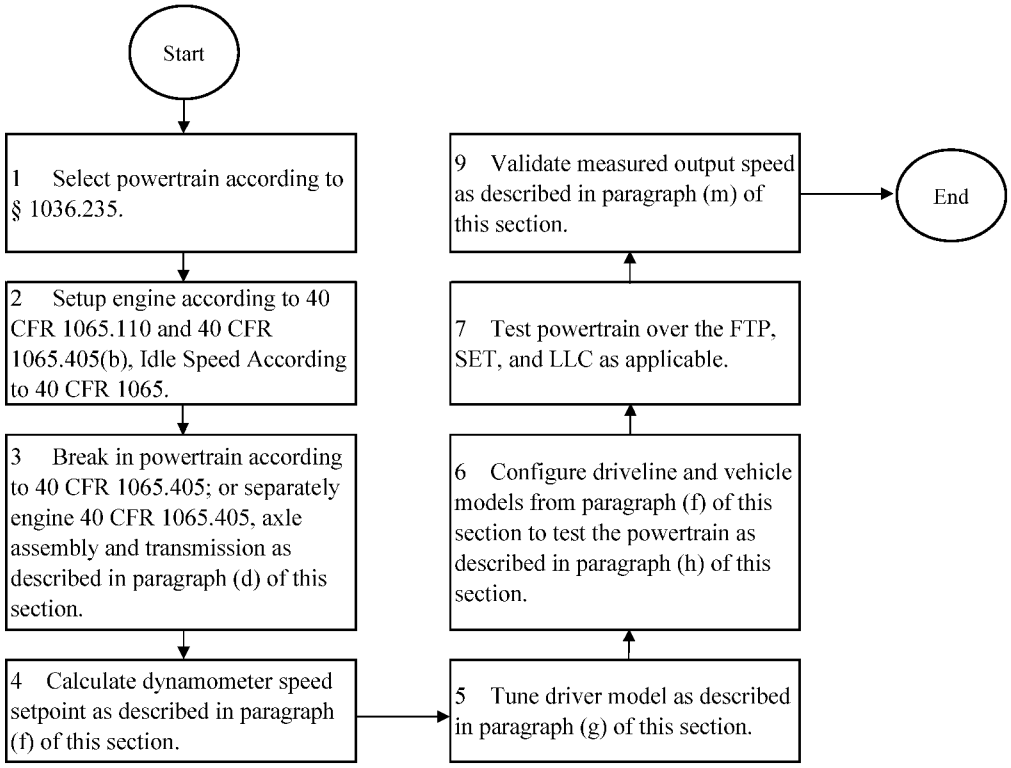
(i) Measure the voltage and current of the battery pack directly with a DC wideband power analyzer to determine power. Measure all current entering and leaving the battery pack. Do not measure voltage upstream of this measurement point. The maximum integration period for determining amp-hours is 0.05 seconds. The power analyzer must have an accuracy for measuring current and voltage of 1% of point or 0.3% of maximum, whichever is greater. The power analyzer must not be susceptible to offset errors while measuring current.

(ii) If safety considerations do not allow for measuring voltage, you may determine the voltage directly from the powertrain ECM.

(11) The following figure provides an overview of testing under this section:

BILLING CODE 6560–50–P

FIGURE 1 TO PARAGRAPH (a)(11) OF § 1036.545—OVERVIEW OF POWERTRAIN TESTING



Duty Cycle Exceptions	Note
SET, FTP, LLC	1) For cycles that begin with idle, leave the transmission in neutral or park for the full initial idle segment. Place the transmission into drive no earlier than 5 seconds before the first nonzero vehicle speed setpoint. 2) Use the vehicle parameters in § 1036.510(b)(2)(i) to (viii) to define the vehicle model in § 1036.545(a)(3).
SET Specific	1) For SET testing only, place the transmission into park or neutral when the cycle reaches the final idle segment. 2) Select the transmission from Table 1 of § 1036.510.
FTP Specific	1) Replace $P_{contrated}$ with P_{rated}, which is the peak rated power determined in § 1036.520. 2) Keep the transmission in drive for all idle segments after the initial idle segment. 3) For hybrid engines, select the transmission from Table 1 of § 1036.510. 4) For hybrid engines, you may request to change the engine-commanded torque at idle to better represent curb idle transmission torque (CITT).
LLC Specific	1) Replace $P_{contrated}$ with P_{rated}, which is the peak rated power determined in § 1036.520. 2) Keep the transmission in drive for all idle segments 200 seconds or less. For idle segments more than 200 seconds, place the transmission in park or neutral at the start of the idle segment and place the transmission into drive again no earlier than 5 seconds before the first nonzero vehicle speed setpoint. 3) For hybrid engines, you may request to change the engine-commanded torque at idle to better represent curb idle transmission torque (CITT). 4) For plug-in hybrid engines and powertrains, determine criteria pollutant emissions as described in § 1036.510(d), replacing "SET" with "LLC".

BILLING CODE 6560–50–C

(b) *Test configuration.* Select a powertrain for testing as described in § 1036.235. Set up the engine according to 40 CFR 1065.110 and 1065.405(b). Set the engine's idle speed to warm idle speed defined in 40 CFR 1065.1001.

(1) The default test configuration consists of a powertrain with all components upstream of the axle. This involves connecting the powertrain's output shaft directly to the dynamometer or to a gear box with a fixed gear ratio and measuring torque at the axle input shaft. You may instead set up the dynamometer to connect at the wheel hubs and measure torque at that location. The preceding sentence may apply if your powertrain configuration requires it, such as for hybrid powertrains or if you want to represent the axle performance with powertrain test results. You may alternatively test the powertrain with a chassis dynamometer if you measure speed and torque at the powertrain's output shaft or wheel hubs.

(2) For testing hybrid engines, connect the engine's crankshaft directly to the dynamometer and measure torque at that location.

(c) *Powertrain temperatures during testing.* Cool the powertrain during testing so temperatures for oil, coolant, block, head, transmission, battery, and power electronics are within the manufacturer's expected ranges for normal operation. You may use electronic control module outputs to comply with this paragraph (c). You may use auxiliary coolers and fans.

(d) *Powertrain break in.* Break in the powertrain as a complete system using the engine break-in procedure in 40 CFR 1065.405(c), or take the following steps to break in the engine, axle assembly, and transmission separately as applicable: (1) Break in the engine according to 40 CFR 1065.405(c).

(2) Break in the axle assembly using good engineering judgment. Maintain gear oil temperature at or below 100 °C throughout the break-in period.

(3) Break in the transmission using good engineering judgment. Maintain transmission oil temperature at (87 to 93) °C for automatic transmissions and transmissions having more than two friction clutches, and at (77 to 83) °C for all other transmissions. You may ask us to approve a different range of transmission oil temperatures if you have data showing that it better represents in-use operation.

(e) *Dynamometer setup.* Set the dynamometer to operate in speed-control mode (or torque-control mode for hybrid engine testing at idle, including idle portions of transient duty cycles). Record data as described in 40 CFR 1065.202. Command and control the dynamometer speed at a minimum of 5 Hz, or 10 Hz for testing hybrid engines. Run the vehicle model to calculate the dynamometer setpoints at a rate of at least 100 Hz. If the dynamometer's command frequency is less than the vehicle model dynamometer setpoint frequency, subsample the calculated setpoints for commanding the dynamometer setpoints.

(f) *Driveline and vehicle model.* Use the GEM HIL model's driveline and vehicle submodels or the equations in this paragraph (f) to calculate the dynamometer speed setpoint, $f_{\text{nref,dyno}}$, based on the torque measurement location. For all powertrains, configure GEM with the accessory load set to zero. For hybrid engines, configure GEM with the applicable accessory load as specified in §§ 1036.514 and 1036.525. For all powertrains and hybrid engines, configure GEM with the tire slip model disabled.

(1) *Driveline model with a transmission in hardware.* For testing with torque measurement at the axle input shaft or wheel hubs, calculate, $f_{\text{nref,dyno}}$, using the GEM HIL model's driveline submodel or the following equation:

$$f_{nrefi,dyno} = \frac{k_{a[speed]} \cdot v_{refi}}{2 \cdot \pi \cdot r_{[speed]}}$$

Eq. 1036.545–1

Where:

$k_{a[speed]}$ = drive axle ratio as determined in paragraph (h) of this section. Set $k_{a[speed]}$ equal to 1.0 if torque is measured at the wheel hubs.

v_{refi} = simulated vehicle reference speed as calculated in paragraph (f)(3) of this section.

$r_{[speed]}$ = tire radius as determined in paragraph (h) of this section.

(2) *Driveline model with a simulated transmission.* For testing with the torque measurement at the engine's crankshaft, $f_{\text{nref,dyno}}$ is the dynamometer target speed from the GEM HIL model's transmission submodel. You may request our approval to change the transmission submodel, as long as the changes do not affect the gear selection logic. Before testing, initialize the transmission model with the engine's measured torque curve and the applicable steady-state fuel map from the GEM HIL model. Configure the torque converter to simulate neutral idle when using this procedure to perform the Supplemental Emission Test (SET) testing under § 1036.510. You may change engine commanded torque at idle to better represent CITT for transient testing under § 1036.512. You may change the simulated engine inertia to match the inertia of the engine under test. We will evaluate your requests under this paragraph (f)(2) based on your demonstration that the adjusted testing better represents in-use operation.

(i) The transmission submodel needs the following model inputs:

(A) Torque measured at the engine's crankshaft.

(B) Engine estimated torque determined from the electronic control module or by converting the instantaneous operator demand to an instantaneous torque in N·m.

(C) Dynamometer mode when idling (speed-control or torque-control).

(D) Measured engine speed when idling.

(E) Transmission output angular speed, $f_{\text{ni,transmission}}$, calculated as follows:

$$f_{ni,transmission} = \frac{k_{a[speed]} \cdot v_{refi}}{2 \cdot \pi \cdot r_{[speed]}}$$

Eq. 1036.545–2

Where:

$k_{a[speed]}$ = drive axle ratio as determined in paragraph (h) of this section.

v_{refi} = simulated vehicle reference speed as calculated in paragraph (f)(3) of this section.

$r_{[speed]}$ = tire radius as determined in paragraph (h) of this section.

(ii) The transmission submodel generates the following model outputs:

(A) Dynamometer target speed.

(B) Dynamometer idle load.

(C) Transmission engine load limit.

(D) Engine speed target.

(3) *Vehicle model.* Calculate the simulated vehicle reference speed, v_{refi}, using the GEM HIL model's vehicle submodel or the equations in this paragraph (f)(3):

$$v_{\text{refi}} = \left(\frac{k_a \cdot T_{i\text{-}1}}{r} \cdot (Eff_{\text{axle}}) - \left(M \cdot g \cdot C_{\text{rr}} \cdot cos(atan(G_{i\text{-}1})) + \frac{\rho \cdot C_d A}{2} \cdot v_{\text{ref},i\text{-}1}^2 \right) - F_{\text{brake},i\text{-}1} - F_{\text{grade},i\text{-}1} \right) \cdot \frac{\Delta t_{i\text{-}1}}{M + M_{\text{rotating}}} + v_{\text{ref},i\text{-}1}$$

Eq. 1036.545–3

Where:

i = a time-based counter corresponding to each measurement during the sampling period. Let $v_{\text{ref1}} = 0$; start calculations at

i = 2. A 10-minute sampling period will generally involve 60,000 measurements.

T = instantaneous measured torque at the axle input, measured at the wheel hubs, or simulated by the GEM HIL model's transmission submodel. For configurations with multiple torque measurements, such as when measuring torque at the wheel hubs, T is the sum of all torque measurements.

Eff_{axle} = axle efficiency. Use Eff_{axle} = 0.955 for $T \geq 0$, and use Eff_{axle} = 1/0.955 for $T <$ 0. Use Eff_{axle} = 1.0 if torque is measured at the wheel hubs.

M = vehicle mass for a vehicle class as determined in paragraph (h) of this section.

g = gravitational constant = 9.80665 m/s^2.

C_{rr} = coefficient of rolling resistance for a vehicle class as determined in paragraph (h) of this section.

$G_{i\text{-}1}$ = the percent grade interpolated at distance, $D_{i\text{-}1,}$ from the duty cycle in § 1036.510 and appendix B to this part, corresponding to measurement (i-1).

$$D_{i\text{-}1} = \sum_{i=1}^{N} \left(v_{\text{ref},i\text{-}1} \cdot \Delta t_{i\text{-}1} \right)$$

Eq. 1036.545–4

ρ = air density at reference conditions. Use ρ = 1.1845 kg/m^3.

C_{dA} = drag area for a vehicle class as determined in paragraph (h) of this section.

$F_{brake,i\text{-}1}$ = instantaneous braking force applied by the driver model.

$F_{grade,i\text{-}1} = M \cdot g \cdot sin(atan(G_{i\text{-}1}))$

Eq. 1036.545–5

Δt = the time interval between measurements. For example, at 100 Hz, Δt = 0.0100 seconds.

$M_{rotating}$ = inertial mass of rotating components. Let $M_{rotating}$ = 340 kg for Light HDE or Medium HDE, and 1,021 kg for Heavy HDE.

(g) *Driver model.* Use the GEM HIL model's driver submodel or design a driver model to simulate a human driver modulating the throttle and brake pedals. In either case, tune the model to follow the test cycle as closely as possible meeting the following specifications:

(1) The driver model must meet the following speed requirements:

(i) [Reserved]

(ii) For operation over the SET as defined § 1036.510, the Federal Test Procedure (FTP) as defined in § 1036.512, and the Low Load Cycle (LLC) as defined in § 1036.514, the speed requirements described in 40 CFR 1066.425(b) and (c).

(iii) The exceptions in 40 CFR 1066.425(b)(4) apply to the SET, FTP, and LLC.

(iv) If the speeds do not conform to these criteria, the test is not valid and must be repeated.

(2) Send a brake signal when operator demand is zero and vehicle speed is greater than the reference vehicle speed from the test cycle. Include a delay before changing the brake signal to prevent dithering, consistent with good engineering judgment.

(3) Allow braking only if operator demand is zero.

(h)–(i) [Reserved]

(j) *Duty cycles to evaluate.* Operate the powertrain over each of the duty cycles specified in §§ 1036.510, 1036.512, and 1036.514 as applicable.

(k)–(l) [Reserved]

(m) *Measured output speed validation.* For each test point, validate the measured output speed with the corresponding reference values. If speed is measured at more than one location, the measurements at each location must meet validation requirements. If the range of reference speed is less than 10 percent of the mean reference speed, you need to meet only the standard error of the estimate in table 4 to this paragraph (m). You may delete points when the vehicle is stopped. If your speed measurement is not at the location of $f_{nref,}$ correct your measured speed using the constant speed ratio between the two locations. Apply cycle-validation criteria for each separate transient or highway cruise cycle based on the following parameters:

TABLE 4 TO PARAGRAPH (m) OF § 1036.545—CYCLE-VALIDATION CRITERIA

Parameter [a]	Speed control
Slope, a_1	0.990 ≤ a_1 ≤ 1.010.
Absolute value of intercept, $\lvert a_0 \rvert$	≤ 2.0% of maximum f_{nref} speed.
Standard error of the estimate, *SEE*	≤ 2.0% of maximum f_{nref} speed.
Coefficient of determination, r^2	≥ 0.990.

[a] Determine values for specified parameters as described in 40 CFR 1065.514(e) by comparing measured and reference values for $f_{nref,dyno.}$

§ 1036.550 [Removed]

■ 96. Remove § 1036.550.

■ 97. Amend § 1036.580 by revising the introductory text and paragraph (c) to read as follows:

§ 1036.580 Infrequently regenerating aftertreatment devices.

For engines using aftertreatment technology with infrequent regeneration events that may occur during testing, take one of the following approaches to account for the emission impact of regeneration on criteria pollutant emissions:

* * * * *

(c) You may choose to make no adjustments to measured emission results if you determine that regeneration does not significantly affect emission levels for an engine family (or configuration) or if it is not practical to identify when regeneration occurs. You may omit adjustment factors under this paragraph (c) individual pollutants under this paragraph (c) as appropriate. If you choose not to make adjustments under paragraph (a) or (b) of this section, your engines must meet emission standards for all testing, without regard to regeneration.

* * * * *

■ 98. Amend § 1036.605 by revising paragraphs (b) and (g) to read as follows:

§ 1036.605 Alternate emission standards for engines used in specialty vehicles.

* * * * *

(b) Compression-ignition engines must be of a configuration that is identical to one that is certified under 40 CFR part 1039, and must be certified with a family emission limit for PM of 0.020 g/kW-hr using the same duty cycles that apply under 40 CFR part 1039.

* * * * *

(g) Engines certified under this section may not generate or use emission credits under this part or under 40 CFR part 1039.

§§ 1036.610, 1036.615, 1036.620, 1036.625, 1036.630, and 1036.635 [Removed]

■ 99. Remove §§ 1036.610, 1036.615, 1036.620, 1036.625, 1036.630, 1036.635.

■ 100. Revise and republish § 1036.701 to read as follows:

§ 1036.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart and in subpart B of this part to show compliance with the standards of §§ 1036.104. Participation in this

program is voluntary. Note that certification to NO_X standards in § 1036.104 is based on a family emission limit (FEL).

(b) The definitions of subpart I of this part apply to this subpart in addition to the following definitions:

(1) *Actual emission credits* means emission credits you have generated that we have verified by reviewing your final report.

(2) *Averaging set* means a set of engines in which emission credits may be exchanged. See § 1036.740.

(3) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(4) *Buyer* means the entity that receives emission credits as a result of a trade.

(5) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(6) *Seller* means the entity that provides emission credits during a trade.

(7) *Standard* means the emission standard that applies under subpart B of this part for engines not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(c) Emission credits may be exchanged only within an averaging set, except as specified in § 1036.740.

(d) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard. This paragraph (d) applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing. However, if emissions from an engine exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(e) You may use either of the following approaches to retire or forego emission credits:

(1) You may retire emission credits generated from any number of your engines. This may be considered donating emission credits to the environment. Identify any such credits in the reports described in § 1036.730. Engines must comply with the applicable FELs even if you donate or sell the corresponding emission credits. Donated credits may no longer be used by anyone to demonstrate compliance with any EPA emission standards.

(2) You may certify an engine family using an FEL below the emission standard as described in this part and choose not to generate emission credits for that family. If you do this, you do not need to calculate emission credits for those engine families, and you do not need to submit or keep the associated records described in this subpart for that family.

(f) Emission credits may be used in the model year they are generated. Surplus emission credits may be banked for future model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1036.225. The new FEL may apply only to engines you have not already introduced into commerce.

(h)–(j) [Reserved]

(k) Engine families you certify with a nonconformance penalty under 40 CFR part 86, subpart L, may not generate emission credits.

■ 101. Revise and republish § 1036.705 to read as follows:

§ 1036.705 Generating and calculating emission credits.

(a) The provisions of this section apply separately for calculating NO_X emission credits.

(b) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Calculate emission credits to the nearest megagram (Mg) for each family using the following equation:

$$\textit{Emission credits}\ (\text{Mg}) = (\textit{Std} - \textit{FL}) \cdot \textit{CF} \cdot \textit{Volume} \cdot \textit{UL} \cdot c$$

Eq. 1036.705–1

Where:

Std = the emission standard, in (mg NO_X)/hp·hr that applies under subpart B of this part for engines not participating in the ABT program of this subpart (the ''otherwise applicable standard'').

FL = the engine family's FEL, in mg/hp·hr, rounded to the same number of decimal places as the emission standard.

CF = a transient cycle conversion factor (hp·hr/mile), calculated by dividing the total (integrated) horsepower-hour over the applicable duty cycle by 6.3 miles for engines subject to spark-ignition standards and 6.5 miles for engines subject to compression-ignition standards. This represents the average work performed over the duty cycle.

Volume = the number of engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

UL = the useful life for the standard that applies for a given primary intended service class, in miles.

$c = 10^{-9}$.

Example for Model Year 2028 Heavy HDE Generating NO_X credits

Std = 35 mg/hp·hr
FEL = 20 mg/hp·hr
CF = 9.78 hp·hr/mile
Volume = 15,342
UL = 650,000 miles
$c = 10^{-6}$
$\textit{Emission credits} = (35 - 20) \cdot 9.78 \cdot 15{,}342 \cdot 650{,}000 \cdot 10^{-9}$
Emission credits = 1,463 Mg

(c) Compliance with the requirements of this subpart is determined at the end of the model year by calculating emission credits based on actual production volumes, excluding the following engines:

(1) Engines that you do not certify to the standards of this part because they are permanently exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported engines.

(3) Engines not subject to the requirements of this part, such as those excluded under § 1036.5.

(4) Engines certified to state emission standards that are different than the emission standards referenced in this section, and intended for sale in a state that has adopted those emission standards.

(5) Any other engines if we indicate elsewhere in this part that they are not to be included in the calculations of this subpart.

■ 102. Revise § 1036.710 to read as follows:

§ 1036.710 Averaging.

(a) Averaging is the exchange of emission credits among your engine families. You may average emission credits only within the same averaging set, except as specified in § 1036.740.

(b) You may certify one or more engine families to an FEL above the applicable standard, subject to any applicable FEL caps and other the provisions in subpart B of this part, if you show in your application for certification that your projected balance of all emission-credit transactions in that model year is greater than or equal to zero.

(c) If you certify an engine family to an FEL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in § 1036.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model

year, from emission credits you have banked, or from emission credits you obtain through trading.

■ 103. Amend § 1036.720 by revising paragraph (c) to read as follows:

§ 1036.720 Trading.

* * * * *

(c) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See § 1036.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits.

■ 104. Revise § 1036.725 to read as follows:

§ 1036.725 Required information for certification.

(a) You must declare in your application for certification your intent to use the provisions of this subpart for each engine family that will be certified using the ABT program. You must also declare the FEL you select for the engine family for each pollutant for which you are using the ABT program. Your FELs must comply with the specifications of subpart B of this part, including the FEL caps.

(b) Include the following in your application for certification:

(1) A statement that, to the best of your belief, you will not have a negative balance of emission credits for any averaging set when all emission credits are calculated at the end of the year.

(2) Calculations of projected emission credits (positive or negative) based on projected production volumes as described in § 1036.705(c). We may require you to include similar calculations from your other engine families to project your net credit balances for the model year. If you project negative emission credits for a family, state the source of positive emission credits you expect to use to offset the negative emission credits.

■ 105. Amend § 1036.730 by revising paragraphs (b)(3) and (4), (c)(1), and (f)(1) to read as follows:

§ 1036.730 ABT reports.

* * * * *

(b) * * *

(3) The FEL for each pollutant. If you change the FEL after the start of production, identify the date that you started using the new FEL and/or give the engine identification number for the first engine covered by the new FEL. In this case, identify each applicable FEL and calculate the positive or negative emission credits as specified in § 1036.225(f).

(4) The projected and actual production volumes for calculating emission credits for the model year. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.

* * * * *

(c) * * *

(1) Show that your net balance of emission credits from all your participating engine families in each averaging set in the applicable model year is not negative. Your credit tracking must account for the limitation on credit life under § 1036.740(d).

* * * * *

(f) * * *

(1) If you notify us by the deadline for submitting the final report that errors mistakenly decreased your balance of emission credits, you may correct the errors and recalculate the balance of emission credits.

* * * * *

■ 106. Amend § 1036.735 by revising paragraph (d) to read as follows:

§ 1036.735 Recordkeeping.

* * * * *

(d) Keep appropriate records to document production volumes of engines that generate or use emission credits under the ABT program. For example, keep available records of the engine identification number (usually the serial number) for each engine you produce that generates or uses emission credits. You may identify these numbers as a range. If you change the FEL after the start of production, identify the date you started using each FEL and the range of engine identification numbers associated with each FEL. You must also identify the purchaser and destination for each engine you produce to the extent this information is available.

* * * * *

■ 107. Amend § 1036.740 by removing and reserving paragraphs (b) and (c) and revising paragraph (d) to read as follows:

§ 1036.740 Restrictions for using emission credits.

* * * * *

(d) *NO_X* credit life. NO_X credits may be used only for five model years after the year in which they are generated. For example, credits you generate in model year 2027 may be used to demonstrate compliance with emission standards only through model year 2032.

* * * * *

§ 1036.745 [Removed]

■ 108. Remove § 1036.745.

■ 109. Amend § 1036.750 by revising paragraph (b) to read as follows:

§ 1036.750 Consequences for noncompliance.

* * * * *

(b) You may certify your engine family to an FEL above an applicable standard based on a projection that you will have enough emission credits to offset the deficit for the engine family.

* * * * *

§ 1036.755 [Removed]

■ 110. Remove § 1036.755.

■ 111. Revise and republish § 1036.801 to read as follows:

§ 1036.801 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

Adjustable parameter has the meaning given in 40 CFR 1068.50.

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust gas recirculation (EGR) and turbochargers are not aftertreatment.

Aircraft means any vehicle capable of sustained air travel more than 100 feet above the ground.

Alcohol-fueled engine mean an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

Automated manual transmission (AMT) means a transmission that operates mechanically similar to a manual transmission, except that an automated clutch actuator controlled by the onboard computer disengages and engages the drivetrain instead of a human driver. An automated manual transmission does not include a torque converter or a clutch pedal controllable by the driver.

Automatic transmission (AT) means a transmission with a torque converter (or equivalent) that uses computerize or other internal controls to shift gears in response to a single driver input for controlling vehicle speed. Note that automatic manual transmissions are not automatic transmissions because they do not include torque converters.

Auxiliary emission control device means any element of design that senses

temperature, motive speed, engine speed (r/min), transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Averaging set has the meaning given in § 1036.740.

Axle ratio or Drive axle ratio, k_a, means the dimensionless number representing the angular speed of the transmission output shaft divided by the angular speed of the drive axle.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly capable of functionally describing its operation over its working range.

Carbon-containing fuel has the meaning given in 40 CFR 1065.1001.

Carryover means relating to certification based on emission data generated from an earlier model year as described in § 1036.235(d).

Certification means relating to the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from the applicable transient and/or steady-state testing, rounded to the same number of decimal places as the applicable standard.

Charge-depleting has the meaning given in 40 CFR 1066.1001.

Charge-sustaining has the meaning given in 40 CFR 1066.1001.

Complete vehicle means a vehicle meeting the definition of complete vehicle in 40 CFR 1037.801 when it is first sold as a vehicle. For example, where a vehicle manufacturer sells an incomplete vehicle to a secondary vehicle manufacturer, the vehicle is not a complete vehicle under this part, even after its final assembly.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine. Note that § 1036.1 also deems gas turbine engines and other engines to be compression-ignition engines.

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the engine crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Critical emission-related component has the meaning given in 40 CFR 1068.30.

Defeat device has the meaning given in § 1036.115(h).

Designated Compliance Officer means one of the following:

(1) For engines subject to compression-ignition standards, *Designated Compliance Officer* means Director, Diesel Engine Compliance Center, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; *complianceinfo@epa.gov; www.epa.gov/ve-certification.*

(2) For engines subject to spark-ignition standards, *Designated Compliance Officer* means Director, Gasoline Engine Compliance Center, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; *complianceinfo@epa.gov; www.epa.gov/ve-certification.*

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data engine. Note that where no deterioration factor applies, references in this part to the *deteriorated emission level* mean the official emission result.

Deterioration factor means the relationship between emissions at the end of useful life (or point of highest emissions if it occurs before the end of useful life) and emissions at the low-hour/low-mileage point, expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life (or point of highest emissions) to emissions at the low-hour point.

(2) For additive deterioration factors, the difference between emissions at the end of useful life (or point of highest emissions) and emissions at the low-hour point.

Diesel exhaust fluid (DEF) means a liquid reducing agent (other than the engine fuel) used in conjunction with selective catalytic reduction to reduce NO_X emissions. *Diesel exhaust fluid* is generally understood to be an aqueous solution of urea conforming to the specifications of ISO 22241.

Drive idle means idle operation during which the vehicle operator remains in the vehicle cab, as evidenced by engaging the brake or clutch pedals, or by other indicators we approve.

Dual-fuel means relating to an engine designed for operation on two different types of fuel but not on a continuous mixture of those fuels (see § 1036.601(d)). For purposes of this part, such an engine remains a dual-fuel engine even if it is designed for operation on three or more different fuels.

Electronic control module (ECM) means an engine's electronic device that uses data from engine sensors to control engine parameters.

Emergency vehicle means a vehicle that meets one of the following criteria:

(1) It is an ambulance or a fire truck.

(2) It is a vehicle that we have determined will likely be used in emergency situations where emission control function or malfunction may cause a significant risk to human life. For example, we would consider a truck that is certain to be retrofitted with a slip-on firefighting module to become an emergency vehicle, even though it was not initially designed to be a fire truck. Also, a mobile command center that is unable to manually regenerate its DPF while on duty could be an emergency vehicle. In making this determination, we may consider any factor that has an effect on the totality of the actual risk to human life. For example, we may consider how frequently a vehicle will be used in emergency situations or how likely it is that the emission controls will cause a significant risk to human life when the vehicle is used in emergency situations. We would not consider the truck in the example above to be an emergency vehicle if there is merely a possibility (rather than a certainty) that it will be retrofitted with a slip-on firefighting module.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

Emission-data engine means an engine that is tested for certification. This includes engines tested to establish deterioration factors.

Emission-related component has the meaning given in 40 CFR part 1068, appendix A.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine configuration means a unique combination of engine hardware and calibration (related to the emission standards) within an engine family, which would include hybrid components for engines certified as hybrid engines and hybrid powertrains. Engines within a single engine configuration differ only with respect to normal production variability or factors unrelated to compliance with emission standards.

Engine family has the meaning given in § 1036.230.

Excluded means relating to engines that are not subject to some or all of the requirements of this part as follows:

(1) An engine that has been determined not to be a heavy-duty engine is excluded from this part.

(2) Certain heavy-duty engines are excluded from the requirements of this part under § 1036.5.

(3) Specific regulatory provisions of this part may exclude a heavy-duty engine generally subject to this part from one or more specific standards or requirements of this part.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust gas recirculation means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust gas recirculation for the purposes of this part.

Family emission limit (FEL) means a NO_X emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The FEL serves as the emission standard for the engine family with respect to all required testing.

Federal Test Procedure (FTP) means the applicable transient duty cycle described in § 1036.512 designed to measure exhaust emissions during urban driving.

Final drive ratio, k_d, means the dimensionless number representing the angular speed of the transmission input shaft divided by the angular speed of the drive axle when the vehicle is operating in its highest available gear. The *final drive ratio* is the transmission gear ratio (in the highest available gear) multiplied by the drive axle ratio.

Flexible-fuel means relating to an engine designed for operation on any mixture of two or more different types of fuels (see § 1036.601(d)).

Fuel type means a general category of fuels such as diesel fuel, gasoline, or natural gas. There can be multiple grades within a single fuel type, such as premium gasoline, regular gasoline, or gasoline with 10 percent ethanol.

Gear ratio or Transmission gear ratio, k_g, means the dimensionless number representing the angular speed of the transmission's input shaft divided by the angular speed of the transmission's output shaft when the transmission is operating in a specific gear.

Good engineering judgment has the meaning given in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

Greenhouse gas Emissions Model (GEM) means the GEM simulation tool referenced in § 1036.810.

Gross vehicle weight rating (GVWR) means the value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle, consistent with good engineering judgment.

Heavy-duty engine means any engine which the engine manufacturer could reasonably expect to be used for motive power in a heavy-duty vehicle. For purposes of this definition in this part, the term ''engine'' includes internal combustion engines and other devices that convert chemical fuel into motive power. For example, a gas turbine used in a heavy-duty vehicle is a heavy-duty engine.

Heavy-duty vehicle means any motor vehicle above 8,500 pounds GVWR. An incomplete vehicle is also a heavy-duty vehicle if it has a curb weight above 6,000 pounds or a basic vehicle frontal area greater than 45 square feet. *Curb weight* and *basic vehicle frontal area* have the meaning given in 40 CFR 86.1803–01.

Hybrid means relating to an engine or powertrain that includes a Rechargeable Energy Storage System. Hybrid engines store and recover energy in a way that is integral to the engine or otherwise upstream of the vehicle's transmission. Examples of hybrid engines include engines with hybrid components connected to the front end of the engine (P0), connected to the crankshaft before the clutch (P1), or connected between the clutch and the transmission where the clutch upstream of the hybrid feature is in addition to the transmission clutch or clutches (P2). Engine-based systems that recover kinetic energy to power an electric heater in the aftertreatment are themselves not sufficient to qualify as a hybrid engine. The provisions in this part that apply for hybrid powertrains apply equally for hybrid engines, except as specified. Note that certain provisions in this part treat hybrid powertrains intended for vehicles that include regenerative braking different than those intended for vehicles that do not include regenerative braking. The definition of hybrid includes plug-in hybrid electric powertrains.

Hydrocarbon (HC) has the meaning given in 40 CFR 1065.1001.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular engine from other similar engines.

Incomplete vehicle means a vehicle meeting the definition of incomplete vehicle in 40 CFR 1037.801 when it is first sold (or otherwise delivered to another entity) as a vehicle.

Liquefied petroleum gas (LPG) means a liquid hydrocarbon fuel that is stored under pressure and is composed primarily of nonmethane compounds that are gases at atmospheric conditions. Note that, although this commercial term includes the word ''petroleum'', LPG is not considered to be a petroleum fuel under the definitions of this section.

Low-hour means relating to an engine that has stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 300 hours of operation for engines with NO_X aftertreatment and 125 hours of operation for other engines.

Manual transmission (MT) means a transmission that requires the driver to shift the gears and manually engage and disengage the clutch.

Manufacture means the physical and engineering process of designing, constructing, and/or assembling a heavy-duty engine or a heavy-duty vehicle.

Manufacturer has the meaning given in 40 CFR 1068.30.

Medium-duty passenger vehicle has the meaning given in 40 CFR 86.1803.

Model year means the manufacturer's annual new model production period, except as restricted under this definition. It must include January 1 of the calendar year for which the model year is named, may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year. Manufacturers may not adjust model years to circumvent or delay compliance with emission standards or to avoid the obligation to certify annually.

Motorcoach means a heavy-duty vehicle designed for carrying 30 or more passengers over long distances. Such vehicles are characterized by row seating, rest rooms, and large luggage compartments, and facilities for stowing carry-on luggage.

Motor vehicle has the meaning given in 40 CFR 85.1703.

Natural gas means a fuel whose primary constituent is methane.

Neat has the meaning given in 40 CFR 1065.1001.

New motor vehicle engine has the meaning given in the Act. This generally means a motor vehicle engine meeting any of the following:

(1) A motor vehicle engine for which the ultimate purchaser has never received the equitable or legal title is a *new motor vehicle engine.* This kind of engine might commonly be thought of as ''brand new'' although a *new motor*

vehicle engine may include previously used parts. Under this definition, the engine 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 motor vehicle engine is a *new motor vehicle engine* if it was originally built on or after January 1, 1970.

(3) Any motor vehicle engine installed in a new motor vehicle.

Noncompliant engine means an engine that was originally covered by a certificate of conformity, but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming engine means an engine not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbon (NMHC) means the sum of all hydrocarbon species except methane, as measured according to 40 CFR part 1065.

Nonmethane hydrocarbon equivalent (NMHCE) has the meaning given in 40 CFR 1065.1001.

Nonmethane nonethane hydrocarbon equivalent (NMNEHC) has the meaning given in 40 CFR 1065.1001.

Official emission result means the measured emission rate for an emission-data engine on a given duty cycle before the application of any deterioration factor, but after the applicability of any required regeneration or other adjustment factors.

Owners manual means a document or collection of documents prepared by the engine or vehicle manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Percent has the meaning given in 40 CFR 1065.1001. Note that this means percentages identified in this part are assumed to be infinitely precise without regard to the number of significant figures. For example, one percent of 1,493 is 14.93.

Placed into service means put into initial use for its intended purpose, excluding incidental use by the manufacturer or a dealer.

Preliminary approval means approval granted by an authorized EPA representative prior to submission of an application for certification, consistent with the provisions of § 1036.210.

Primary intended service class has the meaning given in § 1036.140.

Rechargeable Energy Storage System (RESS) has the meaning given in 40 CFR 1065.1001.

Relating to as used in this section means relating to something in a specific, direct manner. This expression is used in this section only to define terms as adjectives and not to broaden the meaning of the terms.

Revoke has the meaning given in 40 CFR 1068.30.

Round has the meaning given in 40 CFR 1065.1001.

Sample means the collection of engines selected from the population of an engine family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Scheduled maintenance means adjusting, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely.

Small manufacturer means a manufacturer meeting the criteria specified in 13 CFR 121.201. The employee and revenue limits apply to the total number of employees and total revenue together for all affiliated companies (as defined in 40 CFR 1068.30). Note that manufacturers with low production volumes may or may not be ''small manufacturers''.

Spark-ignition means relating to a gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark-ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Stop-start means a vehicle technology that automatically turns the engine off when the vehicle is stopped.

Steady-state has the meaning given in 40 CFR 1065.1001. This includes idle testing where engine speed and load are held at a finite set of nominally constant values.

Suspend has the meaning given in 40 CFR 1068.30.

Test engine means an engine in a sample.

Ultimate purchaser means, with respect to any new engine or vehicle, the first person who in good faith purchases such new engine or vehicle for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family the model year after the one currently in production.

U.S.-directed production volume means the number of engines, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Vehicle has the meaning given in 40 CFR 1037.801.

Void has the meaning given in 40 CFR 1068.30.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

§ 1036.805 [Amended]

■ 112. Amend § 1036.805 by revising Table 5 to Paragraph (e) to remove entries for ''FCL'', ''Heavy HDV'', ''Light HDV'', and ''Medium HDV''.

§ 1036.810 [Amended]

■ 113. Amend § 1036.810 by removing and reserving paragraphs (a)(2) and (3).

■ 114. Amend § 1036.815 by revising paragraph (b) to read as follows:

§ 1036.815 Confidential information.

* * * * *

(b) Emission data or information that is publicly available cannot be treated as confidential business information as described in 40 CFR 1068.11.

Appendix C to Part 1036 [Removed]

■ 115. Remove appendix C to part 1036.

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

■ 116. The authority citation for part 1036 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

§ 1037.5 [Amended]

■ 117. Amend § 1037.5 by removing and reserving paragraphs (c) and (d).

■ 118. Amend § 1037.10 by revising paragraph (b) and removing and reserving paragraphs (d) through (f) and (h). The revision reads as follows:

§ 1037.10 How is this part organized?

* * * * *

(b) Subpart B of this part describes the emission standards and other requirements that must be met to certify vehicles under this part.

* * * * *

■ 119. Amend § 1037.15 by revising paragraph (a) to read as follows:

§ 1037.15 Do any other regulation parts apply to me?

(a) Parts 1065 and 1066 of this chapter describe procedures and equipment specifications for testing engines and vehicles to measure exhaust emissions.

* * * * *

§ 1037.101 [Amended]

■ 120. Amend § 1037.101 by removing and reserving paragraphs (a)(2) and (b)(2).

■ 121. Revise and republish § 1037.102 to read as follows:

§ 1037.102 Criteria pollutant exhaust emission standards—NO_X, HC, PM, and CO.

(a) Engines installed in heavy-duty vehicles are subject to criteria pollutant standards for NO_X, HC, PM, and CO under 40 CFR part 86 through model year 2026 and 40 CFR part 1036 for model years 2027 and later.

(1) The following vehicles are deemed to meet the criteria pollutant exhaust emission standards of this part and you may state in the application for certification that your vehicles comply with all the requirements of this part related to criteria pollutant exhaust emission standards instead of submitting test data:

(i) Model year 2026 and earlier vehicles with installed engines certified to the standards specified in 40 CFR 86.007–11 or 86.008–10.

(ii) Model year 2027 and later vehicles with installed engines certified to the standards specified in 40 CFR part 1036.

(iii) Specialty vehicles with installed engines certified as specified in § 1037.605.

(iv) Glider kits and glider vehicles with installed engines certified as specified in § 1037.635.

(2) This part includes additional specific requirements for the following types of vehicles:

(i) New tractors that include auxiliary power units. See paragraph (c) of this section.

(ii) Vehicles subject to evaporative or refueling standards under § 1037.103.

(b) Heavy-duty vehicles with no installed propulsion engine, such as battery electric vehicles, are subject to criteria pollutant standards under this part. The emission standards that apply are the same as the standards that apply for compression-ignition engines under 40 CFR 86.007–11 or 1036.104 for a given model year.

(1) You may state in the application for certification that vehicles with no installed propulsion engine comply with all the requirements of this part related to criteria emission standards instead of submitting test data. Tailpipe emissions of criteria pollutants from vehicles with no installed propulsion engine are deemed to be zero.

(2) Vehicles with no installed propulsion engines may not generate NO_X credits.

(c) Starting in model year 2024, auxiliary power units installed on new tractors, including tractors that are glider vehicles or tractors with no installed propulsion engine, must be certified to the PM emission standard specified in 40 CFR 1039.699. For model years 2021 through 2023, the APU engine must be certified under 40 CFR part 1039 with a deteriorated emission level for PM at or below 0.15 g/kW-hr. Selling, offering for sale, or introducing or delivering into commerce in the United States or importing into the United States a new tractor subject to this standard is a violation of 40 CFR 1068.101(a)(1) unless the auxiliary power unit has a valid certificate of conformity and the required label showing that it meets the PM standard specified in 40 CFR 1039.699 as described in this paragraph (c).

§§ 1037.105 and 1037.106 [Removed]

■ 122. Remove §§ 1037.105 and 1037.106.

§ 1037.115 [Amended]

■ 123. Amend § 1037.115 by removing paragraphs (e) and (f).

■ 124. Amend § 1037.120 by revising paragraphs (a), (b), and (c) to read as follows:

§ 1037.120 Emission-related warranty requirements.

(a) *General requirements.* You must warrant to the ultimate purchaser and each subsequent purchaser that each new vehicle, including all parts of its emission control system, meets two conditions:

(1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.

(2) It is free from defects in materials and workmanship that cause the vehicle to fail to conform to the requirements of this part during the applicable warranty period.

(b) *Warranty period.* (1) Your emission-related warranty must be valid for at least:

(i) 5 years or 50,000 miles for heavy-duty vehicles at or below 19,500 pounds GVWR.

(ii) 5 years or 100,000 miles for heavy-duty vehicles above 19,500 pounds GVWR.

(2) You may offer an emission-related warranty more generous than we require. The emission-related warranty for the vehicle may not be shorter than any basic mechanical warranty you provide to that owner without charge for the vehicle. Similarly, the emission-related warranty for any component may not be shorter than any warranty you provide to that owner without charge for that component. This means that your warranty for a given vehicle may not treat emission-related and nonemission-related defects differently for any component. The warranty period begins when the vehicle is placed into service.

(c) *Components covered.* The emission-related warranty covers fuel cell stacks, RESS, and other components used with battery electric vehicles and fuel cell electric vehicles. The emission-related warranty covers all components whose failure would increase a vehicle's evaporative and refueling emissions (for vehicles subject to evaporative and refueling emission standards). The emission-related warranty covers components that are part of your certified configuration even if another company produces the component.

* * * * *

■ 125. Revise § 1037.125 to read as follows:

§ 1037.125 Maintenance instructions and allowable maintenance.

Give the ultimate purchaser of each new vehicle written instructions for properly maintaining and using the vehicle with respect to evaporative and refueling emission control system, as applicable.

■ 126. Amend § 1037.135 by removing and reserving paragraphs (c)(6) and (7) and revising paragraph (e). The revision reads as follows:

§ 1037.135 Labeling.

* * * * *

(e) You may ask us to approve modified labeling requirements in this part 1037 if you show that it is necessary or appropriate. For example, if you certify both the engine and vehicle, you may ask for approval to comply with labeling requirements with a single emission control information label. We will approve your request if your alternate label is consistent with the requirements of this part.

§§ 1037.140 and 1037.150 [Removed]

■ 127. Remove §§ 1037.140 and 1037.150.

■ 128. Amend § 1037.201 by removing and reserving paragraph (g) and revising paragraph (i). The revision reads as follows:

§ 1037.201 General requirements for obtaining a certificate of conformity.

* * * * *

(i) Vehicles and installed engines must meet exhaust, evaporative, and refueling emission standards and certification requirements as described in §§ 1037.102 and 1037.103, as applicable. Include the information described in 40 CFR part 86, subpart S, or 40 CFR 1036.205 in your application

for certification in addition to what we specify in § 1037.205 so we can issue a single certificate of conformity for all the requirements that apply for your vehicle and the installed engine.

■ 129. Revise § 1037.205 to read as follows:

§ 1037.205 What must I include in my application?

This section specifies the information that must be in your application, unless we ask you to include less information under § 1037.201(c). We may require you to provide additional information to evaluate your application.

(a) List the fuel type on which your vehicles are designed to operate (for example, diesel fuel or gasoline).

(b) For vehicles with propulsion engines, name all the engine families associated with the vehicle family.

(c) For any new tractors with auxiliary power units, name all the engine families associated with those auxiliary power units.

(d) For any vehicle using RESS (such as hybrid vehicles, fuel cell electric vehicles and battery electric vehicles), describe in detail all components needed to charge the system, store energy, and transmit power to move the vehicle.

(e) For vehicles subject to evaporative and refueling emission standards, include the following information:

(1) Describe the vehicle family's specifications and other basic parameters of the vehicle's design and emission controls. Explain how the emission control system operates. As applicable, describe in detail all system components for controlling emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production vehicle. Identify the part number of each component you describe. For this paragraph (e), treat as separate AECDs any devices that modulate or activate differently from each other.

(2) Where applicable, describe all adjustable operating parameters (see § 1037.115), including production tolerances. For any operating parameters that do not qualify as adjustable parameters, include a description supporting your conclusion (see 40 CFR 1068.50(c)). Include the following in your description of each adjustable parameter:

(i) The nominal or recommended setting.

(ii) The intended practically adjustable range.

(iii) The limits or stops used to establish adjustable ranges.

(iv) Information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended practically adjustable ranges.

(3) Identify the vehicle family's useful life.

(4) Describe your engineering analysis to demonstrate compliance with standards as described in § 1037.103(c), or include the following testing information:

(i) Describe any vehicles or components you selected for testing and the reasons for selecting them.

(ii) Describe any test equipment and procedures that you used, including any special or alternate test procedures you used.

(iii) Describe how you operated any emission-data vehicle before testing, including the duty cycle and the number of vehicle operating miles used to stabilize emission-related performance. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did, and any practices or specifications that should apply for our testing.

(iv) List the specifications of any test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065.

(v) Identify the emission standards or FELs to which you are certifying vehicles in the vehicle family.

(vi) Where applicable, identify the vehicle family's deterioration factors and describe how you developed them. Present any emission test data you used for this.

(vii) Where applicable, state that you operated your emission-data vehicles as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.

(f) Include any maintenance instructions and warranty statements you will give to the ultimate purchaser of each new vehicle (see §§ 1037.120 and 1037.125).

(g) Describe your emission control information label (see § 1037.135).

(h) Unconditionally certify that all the vehicles in the vehicle family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(i) Include good-faith estimates of U.S.-directed production volumes. We may require you to describe the basis of your estimates.

(j) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(k) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

■ 130. Amend § 1037.225 by revising paragraphs (a)(1) and (f) to read as follows:

§ 1037.225 Amending applications for certification.

* * * * *

(a) * * *

(1) Add any vehicle configurations to a vehicle family that are not already covered by your application. For example, if your application identifies three possible engine models, and you plan to produce vehicles using an additional engine model, then you must amend your application before producing vehicles with the fourth engine model.

* * * * *

(f) You may ask us to approve a change to your FEL in certain cases after the start of production. The changed FEL may not apply to vehicles you have already introduced into U.S. commerce, except as described in this paragraph (f). You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your vehicle family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

(2) Where testing applies, you may ask to lower the FEL for your vehicle family only if you have test data from production vehicles showing that emissions are below the proposed lower FEL. Otherwise, you may ask to lower your FEL for your vehicle family at any time. The lower FEL applies only to vehicles you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

(3) You may ask to add an FEL for your vehicle family at any time.

* * * * *

■ 131. Revise § 1037.230 to read as follows:

§ 1037.230 Vehicle families.

For purposes of certifying your vehicles, divide your product line into vehicle families as follows:

(a) All vehicles identified in § 1037.102(a)(1)(i) and (ii) for a given

model year may be in a single vehicle family, except as follows:

(1) New tractors with auxiliary power units need to be in a separate vehicle family.

(2) Divide vehicles subject to evaporative or refueling standards into vehicle families as described in 40 CFR 86.1821.

(b) All specialty vehicles identified in § 1037.102(a)(1)(iii) for a given model year may be in a single vehicle family.

(c) All glider kits and glider vehicles in § 1037.102(a)(1)(iv) for a given model year may be in a single vehicle family.

(d) All vehicles with no installed propulsion engine for a given model year may be in a single vehicle family, except that new tractors with auxiliary power units must be in a separate vehicle family.

§§ 1037.231 and 1036.232 [Removed]

■ 132. Remove §§ 1037.231 and 1037.232.

■ 133. Revise and republish § 1037.235 to read as follows:

§ 1037.235 Testing requirements for certification.

This section describes the emission testing you must perform to show compliance with respect to the standards in subpart B of this part, and to determine any input values.

(a) Select emission-data vehicles that represent production vehicles and components for the vehicle family. Where the test results will represent multiple vehicles or components with different emission performance, use good engineering judgment to select worst-case emission data vehicles or components.

(b) Test your emission-data vehicles (including emission-data components) using the procedures and equipment referenced in subpart B of this part. Measure emissions (or other parameters, as applicable) using the specified procedures.

(c) We may perform confirmatory testing by measuring emissions (or other parameters, as applicable) from any of your emission-data vehicles.

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the vehicle or component to a test facility we designate. The vehicle or component you provide must be in a configuration that is suitable for testing. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need (see paragraph (g) of this section for provisions that apply specifically for testing a tractor's aerodynamic performance).

(2) If we measure emissions (or other parameters, as applicable) from your vehicle or component, the results of that testing become the official emission results for the vehicle or component. Note that changing the official emission result does not necessarily require a change in the declared modeling input value. Unless we later invalidate these data, we may decide not to consider your data in determining if your vehicle family meets applicable requirements in this part.

(3) Before we test one of your vehicles or components, we may set its adjustable parameters to any point within the practically adjustable ranges, if applicable.

(4) Before we test one of your vehicles or components, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply for a vehicle parameter that is subject to production variability because it is adjustable during production, but is not considered an adjustable parameter (as defined in § 1037.801) because it is permanently sealed. For parameters that relate to a level of performance that is itself subject to a specified range (such as maximum power output), we will generally perform any calibration under this paragraph (c)(4) in a way that keeps performance within the specified range. Note that this paragraph (c)(4) does not allow us to test your vehicles in a condition that would be unrepresentative of production vehicles.

(d) You may ask to use carryover data for a vehicle or component from a previous model year instead of doing new tests if the applicable emission-data vehicle from the previous model year remains the appropriate emission-data vehicle under paragraph (b) of this section.

(e) We may require you to test a second vehicle or component of the same configuration in addition to the vehicle or component tested under paragraph (a) of this section.

(f) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures referenced in subpart B of this part, we may reject data you generated using the alternate procedure.

§ 1037.241 [Removed]

■ 134. Remove § 1037.241.

■ 135. Amend § 1037.250 by revising paragraph (a) to read as follows:

§ 1037.250 Reporting and recordkeeping.

(a) By September 30 following the end of the model year, send the Designated Compliance Officer a report including the total U.S.-directed production volume of vehicles you produced in each vehicle family during the model year (based on information available at the time of the report) by engine family. Report uncertified vehicles sold to secondary vehicle manufacturers. We may waive the reporting requirements of this paragraph (a) for small manufacturers.

* * * * *

Subparts D through F [Reserved]

■ 136. Remove and reserve:

■ a. Subpart D, consisting of §§ 1037.301 through 1037.320;

■ b. Subpart E, consisting of § 1037.401; and

■ c. Subpart F, consisting of §§ 1037.501 through 1037.570.

■ 137. Amend § 1037.601 by revising paragraph (a)(1) to read as follows:

§ 1037.601 General compliance provisions.

(a) * * *

(1) Except as specifically allowed by this part or 40 CFR part 1068, it is a violation of 40 CFR 1068.101(a)(1) to introduce into U.S. commerce a vehicle containing an engine that is not certified to the applicable requirements of 40 CFR part 86 or 1036.

* * * * *

■ 138. Amend § 1037.605 by revising paragraph (d) to read as follows:

§ 1037.605 Installing engines certified to alternate standards for specialty vehicles.

* * * * *

(d) *Vehicle standards.* Vehicles qualifying under this section are subject to evaporative emission standards as specified in § 1037.103, but are exempt from the other requirements of this part, except as specified in this section and in § 1037.601. These vehicles must include a label as specified in § 1037.135.

§§ 1037.610 and 1037.615 [Removed]

■ 139. Remove §§ 1037.610 and 1037.615.

■ 140. Amend § 1037.620 by revising paragraph (c) introductory text to read as follows:

§ 1037.620 Responsibilities for multiple manufacturers.

* * * * *

(c) Component manufacturers providing test data to certifying vehicle manufacturers are responsible as follows for test components and emission test results provided to vehicle

manufacturers for the purpose of certification under this part:

* * * * *

■ 141. Amend § 1037.621 by revising paragraphs (b) and (d) introductory text and removing paragraph (g). The revisions read as follows:

§ 1037.621 Delegated assembly.

* * * * *

(b) You do not need an exemption to ship a vehicle that does not include installation or assembly of certain emission-related components if those components are shipped along with the vehicle. For example, you may generally ship fuel tanks along with vehicles rather than installing them on the vehicle before shipment. We may require you to describe how you plan to use this provision.

* * * * *

(d) Delegated-assembly provisions apply as specified in this paragraph (d) if the certifying vehicle manufacturer relies on a secondary vehicle manufacturer to procure and install auxiliary power units or natural gas fuel tanks. Apply the provisions of 40 CFR 1068.261, with the following exceptions and clarifications:

* * * * *

■ 142. Amend § 1037.622 by revising the introductory text and paragraph (a) and removing paragraph (d). The revisions read as follows:

§ 1037.622 Shipment of partially complete vehicles to secondary vehicle manufacturers.

This section specifies how manufacturers may introduce partially complete vehicles into U.S. commerce (or in the case of certain custom vehicles, introduce complete vehicles into U.S. commerce for modification by a small manufacturer). The provisions of this section are intended to accommodate normal business practices without compromising the effectiveness of certified emission controls. You may not use the provisions of this section to circumvent the intent of this part.

(a) The provisions of this section allow manufacturers to ship partially complete vehicles to secondary vehicle manufacturers or otherwise introduce them into U.S. commerce in the following circumstances:

(1) *Certified vehicles.* Manufacturers may introduce partially complete tractors into U.S. commerce if they are covered by certificates of conformity and are in certified configurations. See § 1037.621 for vehicles not yet in a certified configuration when introduced into U.S. commerce.

(2) *Uncertified vehicles that will be certified by secondary vehicle manufacturers.* Manufacturers may introduce into U.S. commerce partially complete vehicles for which they do not hold the required certificate of conformity only as allowed by paragraph (b) of this section.

(3) *Exempted vehicles.* Manufacturers may introduce into U.S. commerce partially complete vehicles without a certificate of conformity if the vehicles are exempt under this part or under 40 CFR part 1068. This may involve the secondary vehicle manufacturer qualifying for the exemption.

* * * * *

§§ 1037.630 and 1037.631 [Removed]

■ 143. Remove §§ 1037.630 and 1037.631.

■ 144. Amend § 1037.635 by removing the introductory text and revising paragraphs (a) and (b). The revision reads as follows:

§ 1037.635 Glider kits and glider vehicles.

(a) Vehicles produced from glider kits and other glider vehicles are subject to the same standards as other new vehicles. For example, APUs installed on new glider tractors are subject to the certification requirement described in § 1037.102.

(b) Section 1037.601(a)(1) disallows the introduction into U.S. commerce of a new vehicle (including a vehicle assembled from a glider kit) unless it has an engine that is certified to the applicable standards in 40 CFR parts 86 and 1036. Except as specified otherwise in this part, the standards apply for engines used in glider vehicles as follows:

(1) [Reserved]

(2) The engine must meet the criteria pollutant standards of 40 CFR part 86 or 1036 that apply for the engine model year corresponding to the vehicle's date of manufacture.

(3) The engine may be from an earlier model year if the standards were identical to the currently applicable engine standards.

* * * * *

§§ 1037.640, 1037.645, 1037.655, 1037.660, 1037.665, and 1037.670 [Removed]

■ 145. Remove §§ 1037.640, 1037.645, 1037.655, 1037.660, 1037.665, and 1037.670.

Subpart H [Reserved]

■ 146. Remove and reserve subpart H, consisting of §§ 1037.701 through 1037.755.

■ 147. Revise and republish § 1037.801 to read as follows:

§ 1037.801 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

Adjustable parameter has the meaning given in 40 CFR 1068.30.

Adjusted Loaded Vehicle Weight means the numerical average of vehicle curb weight and GVWR.

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the vehicle exhaust before it is exhausted to the environment. Exhaust gas recirculation (EGR) and turbochargers are not aftertreatment.

Aircraft means any vehicle capable of sustained air travel more than 100 feet off the ground.

Alcohol-fueled vehicle means a vehicle that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

Alternative fuel conversion has the meaning given for clean alternative fuel conversion in 40 CFR 85.502.

Amphibious vehicle means a motor vehicle that is also designed for operation on water. Note that high ground clearance that enables a vehicle to drive through water rather than floating on the water does not make a vehicle amphibious.

Auxiliary emission control device means any element of design that senses temperature, motive speed, engine speed (r/min), transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Auxiliary power unit means a device installed on a vehicle that uses an engine to provide power for purposes other than to (directly or indirectly) propel the vehicle.

Battery electric vehicle means a motor vehicle powered solely by an electric motor where energy for the motor is supplied by one or more batteries that receive power from an external source of electricity. Note that this definition does not include hybrid vehicles or plug-in hybrid electric vehicles.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly

capable of functionally describing its operation over its working range.

Carryover means relating to certification based on emission data generated from an earlier model year.

Certification means relating to the process of obtaining a certificate of conformity for a vehicle family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in a vehicle family for a given pollutant from either transient or steady-state testing.

Class means relating to GVWR classes, as follows:

(1) *Class 2b* means relating to heavy-duty motor vehicles at or below 10,000 pounds GVWR.

(2) *Class 3* means relating to heavy-duty motor vehicles above 10,000 pounds GVWR but at or below 14,000 pounds GVWR.

(3) *Class 4* means relating to heavy-duty motor vehicles above 14,000 pounds GVWR but at or below 16,000 pounds GVWR.

(4) *Class 5* means relating to heavy-duty motor vehicles above 16,000 pounds GVWR but at or below 19,500 pounds GVWR.

(5) *Class 6* means relating to heavy-duty motor vehicles above 19,500 pounds GVWR but at or below 26,000 pounds GVWR.

(6) *Class 7* means relating to heavy-duty motor vehicles above 26,000 pounds GVWR but at or below 33,000 pounds GVWR.

(7) *Class 8* means relating to heavy-duty motor vehicles above 33,000 pounds GVWR.

Complete vehicle has the meaning given in the definition for *vehicle* in this section.

Compression-ignition has the meaning given in § 1037.101.

Date of manufacture means the date on which the certifying vehicle manufacturer completes its manufacturing operations, except as follows:

(1) Where the certificate holder is an engine manufacturer that does not manufacture the chassis, the date of manufacture of the vehicle is based on the date assembly of the vehicle is completed.

(2) We may approve an alternate date of manufacture based on the date on which the certifying (or primary) manufacturer completes assembly at the place of main assembly, consistent with the provisions of § 1037.601 and 49 CFR 567.4.

Designated Compliance Officer means one of the following:

(1) For compression-ignition engines, *Designated Compliance Officer* means Director, Diesel Engine Compliance Center, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; *complianceinfo@epa.gov; www.epa.gov/ve-certification.*

(2) For spark-ignition engines, *Designated Compliance Officer* means Director, Gasoline Engine Compliance Center, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; *complianceinfo@epa.gov; www.epa.gov/ve-certification.*

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data vehicle. Note that where no deterioration factor applies, references in this part to the *deteriorated emission level* mean the official emission result.

Deterioration factor means the relationship between the highest emissions during the useful life and emissions at the low-hour test point, expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of the highest emissions to emissions at the low-hour test point.

(2) For additive deterioration factors, the difference between the highest emissions and emissions at the low-hour test point.

Diesel exhaust fluid (DEF) means a liquid reducing agent (other than the engine fuel) used in conjunction with selective catalytic reduction to reduce NO_X emissions. *Diesel exhaust fluid* is generally understood to be an aqueous solution of urea conforming to the specifications of ISO 22241.

Dual-fuel means relating to a vehicle or engine designed for operation on two different fuels but not on a continuous mixture of those fuels. For purposes of this part, such a vehicle or engine remains a dual-fuel vehicle or engine even if it is designed for operation on three or more different fuels.

Electronic control module has the meaning given in 40 CFR 1065.1001.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from a vehicle.

Emission-data component means a vehicle component that is tested for certification. This includes vehicle components tested to establish deterioration factors.

Emission-data vehicle means a vehicle (or vehicle component) that is tested for certification. This includes vehicles tested to establish deterioration factors.

Emission-related component has the meaning given in 40 CFR part 1068, appendix A.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Excluded means relating to vehicles that are not subject to some or all of the requirements of this part as follows:

(1) A vehicle that has been determined not to be a ''motor vehicle'' is excluded from this part.

(2) Certain vehicles are excluded from the requirements of this part under § 1037.5.

(3) Specific regulatory provisions of this part may exclude a vehicle generally subject to this part from one or more specific standards or requirements of this part.

Exempted has the meaning given in 40 CFR 1068.30. Note that exempted vehicles are not considered to be excluded.

Extended idle means tractor idle operation during which the engine is operating to power accessories for a sleeper compartment or other passenger compartment. Although the vehicle is generally parked during extended idle, the term ''parked idle'' generally refers to something different than extended idle.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The *family emission limit* must be expressed to the same number of decimal places as the emission standard it replaces.

Flexible-fuel means relating to an engine designed for operation on any mixture of two or more different fuels.

Fuel cell electric vehicle means a motor vehicle powered solely by an electric motor where energy for the motor is supplied by hydrogen fuel cells. Fuel cell electric vehicles may include energy storage from the fuel cells or from regenerative braking in a battery.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents. It also includes components for controlling evaporative emissions, such as fuel caps, purge valves, and carbon canisters.

Fuel type means a general category of fuels such as diesel fuel or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Gaseous fuel means a fuel that has a boiling point below 20 °C.

Glider kit means either of the following:

(1) A new vehicle that is incomplete because it lacks an engine, transmission, and/or axle(s).

(2) Any other new equipment that is substantially similar to a complete motor vehicle and is intended to become a complete motor vehicle with a previously used engine (including a rebuilt or remanufactured engine). For example, incomplete heavy-duty tractor assemblies that are produced on the same assembly lines as complete tractors and that are made available to secondary vehicle manufacturers to complete assembly by installing used/remanufactured engines, transmissions and axles are glider kits.

Glider vehicle means a new motor vehicle produced from a glider kit, or otherwise produced as a new motor vehicle with a with a used/remanufactured engine.

Good engineering judgment has the meaning given in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

Gross combination weight rating (GCWR) means the value specified by the vehicle manufacturer as the maximum weight of a loaded vehicle and trailer, consistent with good engineering judgment. For example, compliance with SAE J2807 is generally considered to be consistent with good engineering judgment, especially for Class 3 and smaller vehicles.

Gross vehicle weight rating (GVWR) means the value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle, consistent with good engineering judgment.

Heavy-duty engine means any engine used for (or for which the engine manufacturer could reasonably expect to be used for) motive power in a heavy-duty vehicle.

Heavy-duty vehicle means any motor vehicle that has a GVWR above 8,500 pounds. An incomplete vehicle is also a heavy-duty vehicle if it has a curb weight above 6,000 pounds or a basic vehicle frontal area greater than 45 square feet.

Hybrid has the meaning given in 40 CFR 1036.801. Note that a hybrid vehicle is a vehicle with a hybrid engine or other hybrid powertrain. This includes plug-in hybrid electric vehicles.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled vehicles, HC means nonmethane hydrocarbon equivalent (NMHCE) for exhaust emissions and total hydrocarbon equivalent (THCE) for evaporative emissions. For all other vehicles, HC means nonmethane hydrocarbon (NMHC) for exhaust emissions and total hydrocarbon (THC) for evaporative emissions.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular vehicle from other similar vehicles.

Incomplete vehicle has the meaning given in the definition of *vehicle* in this section.

Light-duty truck has the meaning given in 40 CFR 86.1803–01.

Light-duty vehicle has the meaning given in 40 CFR 86.1803–01.

Low-mileage means relating to a vehicle with stabilized emissions and represents the undeteriorated emission level. This would generally involve approximately 4000 miles of operation.

Manufacture means the physical and engineering process of designing, constructing, and/or assembling a vehicle.

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 an 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, entities that manufacture glider kits, and entities that assemble glider vehicles.

Medium-duty passenger vehicle (MDPV) has the meaning given in 40 CFR 86.1803.

Model year means one of the following for compliance with this part. Note that manufacturers may have other model year designations for the same vehicle for compliance with other requirements or for other purposes:

(1) For vehicles with a date of manufacture on or after January 1, 2021, *model year* means the manufacturer's annual new model production period based on the vehicle's date of manufacture, where the model year is the calendar year corresponding to the date of manufacture, except as follows:

(i) The vehicle's model year may be designated as the year before the calendar year corresponding to the date of manufacture if the engine's model year is also from an earlier year. You may ask us to extend your prior model year certificate to include such vehicles. Note that § 1037.601(a)(2) limits the extent to which vehicle manufacturers may install engines built in earlier calendar years.

(ii) The vehicle's model year may be designated as the year after the calendar year corresponding to the vehicle's date of manufacture. For example, a manufacturer may produce a new vehicle by installing the engine in December 2023 and designating it as a model year 2024 vehicle.

(2) For Phase 1 vehicles with a date of manufacture before January 1, 2021, *model year* means the manufacturer's annual new model production period, except as restricted under this definition and 40 CFR part 85, subpart X. It must include January 1 of the calendar year for which the model year is named, may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year. The model year may be set to match the calendar year corresponding to the date of manufacture.

(i) The manufacturer who holds the certificate of conformity for the vehicle must assign the model year based on the date when its manufacturing operations are completed relative to its annual model year period. In unusual circumstances where completion of your assembly is delayed, we may allow you to assign a model year one year earlier, provided it does not affect which regulatory requirements will apply.

(ii) Unless a vehicle is being shipped to a secondary vehicle manufacturer that will hold the certificate of conformity, the model year must be assigned prior to introduction of the vehicle into U.S. commerce. The certifying manufacturer must redesignate the model year if it does not complete its manufacturing operations within the originally identified model year. A vehicle introduced into U.S. commerce without a model year is deemed to have a model year equal to the calendar year of its introduction into U.S. commerce unless the certifying manufacturer assigns a later date.

Motor vehicle has the meaning given in 40 CFR 85.1703.

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. For example, vehicles commonly known as ''glider kits,'' ''glider vehicles,'' or ''gliders'' are new motor vehicles. 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.*

Noncompliant vehicle means a vehicle that was originally covered by a certificate of conformity, but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming vehicle means a vehicle not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbon (NMHC) means the sum of all hydrocarbon species except methane, as measured according to 40 CFR part 1065.

Nonmethane hydrocarbon equivalent (NMHCE) has the meaning given in 40 CFR 1065.1001.

Official emission result means the measured emission rate for an emission-data vehicle on a given duty cycle before the application of any required deterioration factor, but after the applicability of regeneration adjustment factors.

Owners manual means a document or collection of documents prepared by the vehicle manufacturer for the owners or operators to describe appropriate vehicle maintenance, applicable warranties, and any other information related to operating or keeping the vehicle. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Particulate trap means a filtering device that is designed to physically trap all particulate matter above a certain size.

Percent (%) has the meaning given in 40 CFR 1065.1001. Note that this means percentages identified in this part are assumed to be infinitely precise without regard to the number of significant figures. For example, one percent of 1,493 is 14.93.

Petroleum means gasoline or diesel fuel or other fuels normally derived from crude oil. This does not include methane or liquefied petroleum gas.

Placed into service means put into initial use for its intended purpose, excluding incidental use by the manufacturer or a dealer.

Plug-in hybrid electric vehicle means a hybrid vehicle that has the capability to charge one or more batteries from an external source of electricity while the vehicle is parked.

Preliminary approval means approval granted by an authorized EPA representative prior to submission of an application for certification, consistent with the provisions of § 1037.210.

Rechargeable Energy Storage System (RESS) has the meaning given in 40 CFR 1065.1001.

Relating to as used in this section means relating to something in a specific, direct manner. This expression is used in this section only to define terms as adjectives and not to broaden the meaning of the terms.

Revoke has the meaning given in 40 CFR 1068.30.

Round has the meaning given in 40 CFR 1065.1001.

Scheduled maintenance means adjusting, repairing, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely. It also may mean actions you expect are necessary to correct an overt indication of failure or malfunction for which periodic maintenance is not appropriate.

Secondary vehicle manufacturer anyone that produces a vehicle by modifying a complete vehicle or completing the assembly of a partially complete vehicle. For the purpose of this definition, ''modifying'' generally does not include making changes that do not remove a vehicle from its original certified configuration. However, custom sleeper modifications and alternative fuel conversions that change actual vehicle aerodynamics are considered to be modifications, even if they are permitted without recertification. This definition applies whether the production involves a complete or partially complete vehicle and whether the vehicle was previously certified to emission standards or not. Manufacturers controlled by the manufacturer of the base vehicle (or by an entity that also controls the manufacturer of the base vehicle) are not secondary vehicle manufacturers; rather, both entities are considered to be one manufacturer for purposes of this part.

Spark-ignition has the meaning given in § 1037.101.

Suspend has the meaning given in 40 CFR 1068.30.

Test sample means the collection of vehicles or components selected from the population of a vehicle family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Test vehicle means a vehicle in a test sample.

Test weight means the vehicle weight used or represented during testing.

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with an atomic hydrogen-to-carbon ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001. This generally means the sum of the carbon mass contributions of non-oxygenated hydrocarbon, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled vehicles. The atomic hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Tractor means a truck designed primarily for drawing other motor vehicles and not so constructed as to carry a load other than a part of the weight of the vehicle and the load so drawn. This includes most heavy-duty vehicles specifically designed for the primary purpose of pulling trailers, but does not include vehicles designed to carry other loads. For purposes of this definition ''other loads'' would not include loads carried in the cab, sleeper compartment, or toolboxes. Examples of vehicles that are similar to tractors but that are not *tractors* under this part include dromedary tractors, automobile haulers, straight trucks with trailers hitches, and tow trucks. *Ultimate purchaser* means, with respect to any new vehicle, the first person who in good faith purchases such new vehicle for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for a vehicle family the model year after the one currently in production.

U.S.-directed production volume means the number of vehicle units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Useful life means the period during which a vehicle is required to comply with all applicable emission standards.

Vehicle means equipment intended for use on highways that meets at least one of the criteria of paragraph (1) of this definition, as follows:

(1) The following equipment are vehicles:

(i) A piece of equipment that is intended for self-propelled use on highways becomes a vehicle when it

includes at least an engine, a transmission, and a frame. (*Note:* For purposes of this definition, any electrical, mechanical, and/or hydraulic devices attached to engines for the purpose of powering wheels are considered to be transmissions.)

(ii) A piece of equipment that is intended for self-propelled use on highways becomes a vehicle when it includes a passenger compartment attached to a frame with one or more axles.

(2) Vehicles may be complete or incomplete vehicles as follows:

(i) A *complete vehicle* is a functioning vehicle that has the primary load carrying device or container (or equivalent equipment) attached when it is first sold as a vehicle. Examples of equivalent equipment would include fifth wheel trailer hitches, firefighting equipment, and utility booms.

(ii) An *incomplete vehicle* is a vehicle that is not a complete vehicle. Incomplete vehicles may also be cab-complete vehicles. This may include vehicles sold to secondary vehicle manufacturers.

(iii) You may ask us to allow you to certify a vehicle as incomplete if you manufacture the engines and sell the unassembled chassis components, as long as you do not produce and sell the body components necessary to complete the vehicle.

Vehicle configuration means a unique combination of vehicle hardware and calibration (related to measured or modeled emissions) within a vehicle family. Vehicles with hardware or software differences, but that have no hardware or software differences related to measured or modeled emissions may be included in the same vehicle configuration. Vehicles within a vehicle configuration differ only with respect to normal production variability or factors unrelated to measured or modeled emissions.

Vehicle family has the meaning given in § 1037.230.

Void has the meaning given in 40 CFR 1068.30.

Volatile liquid fuel means any fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

■ 148. Amend § 1037.805 by removing ''CO2DEF'' and ''CO2PTO'' from table 4 to paragraph (d) and revise paragraph (e). The revision reads as follows:

§ 1037.805 Symbols, abbreviations, and acronyms.

* * * * *

(e) *Other acronyms and abbreviations.* This part uses the following additional abbreviations and acronyms:

TABLE 5 TO PARAGRAPH (e) OF § 1037.805—OTHER ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AECD	auxiliary emission control device.
AES	automatic engine shutdown.
APU	auxiliary power unit.
CD	charge-depleting.
CFR	Code of Federal Regulations.
CITT	curb idle transmission torque.
CS	charge-sustaining.
DOT	Department of Transportation.
EPA	Environmental Protection Agency.
FEL	Family Emission Limit.
GAWR	gross axle weight rating.
GCWR	gross combination weight rating.
GVWR	gross vehicle weight rating.
HVAC	heating, ventilating, and air conditioning.
ISO	International Organization for Standardization.
NARA	National Archives and Records Administration.
NHTSA	National Highway Traffic Safety Administration.
RESS	rechargeable energy storage system.
SAE	SAE International.
SEE	standard error of the estimate.
SKU	stock-keeping unit.
U.S.C.	United States Code.

* * * * *

§ 1037.810 [Removed]

■ 149. Remove § 1037.810.

§ 1037.825 [Amended]

■ 150. Amend § 1037.825 by removing and reserving paragraph (e)(1)(i) and removing paragraph (e)(1)(iv).

Appendices A Through E to Part 1037 [Removed]

■ 151. Remove appendices A through E to part 1037.

PART 1039—CONTROL OF EMISSIONS FROM NEW AND IN-USE NONROAD COMPRESSION-IGNITION ENGINES

■ 152. The authority citation for part 1039 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

■ 153. Amend § 1039.699 by revising paragraphs (a) and (n) to read as follows:

§ 1039.699 Emission standards and certification requirements for auxiliary power units for highway tractors.

(a) This section describes emission standards and certification requirements for auxiliary power units (APU) installed on highway tractors subject to standards under 40 CFR 1037.102 starting in model year 2024.

* * * * *

(n) If a highway tractor manufacturer violates 40 CFR 1037.102 by installing an APU from you that is not properly certified and labeled, you are presumed to have caused the violation (see 40 CFR 1068.101(c)).

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